

Refrigeration & Air-conditioning *Business*

JANUARY 1959

After 25 job interviews
with dealers in five major cities
a BUSINESS editor says:



**You
Couldn't
Hire Me**
to sell
residential
air-conditioning

STEVENS RICE
UNIVERSITY MICROFILMS
315 NORTH FIRST ST
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THE MAGAZINE OF Merchandising • Application • Installation • Maintenance • Business Management



PERFECTION BEYOND THE "NTH" DEGREE!



Through these dies passes the world's most perfect thin-wall tubing!

To achieve this perfection, the mandrils and dies used by Viking not only have been engineered to a degree of precision far greater than specifications require . . . but they are constantly checked to fantastically small limitations on special machinery built by Viking for this purpose.

The advanced techniques utilized by Viking naturally produce thin-wall copper tubing that is consistently superior in quality — quality that reflects itself in savings and dependability for the user. As a result, more and more manufacturers of air conditioning and refrigeration units and coils find that Viking continues to be the best source for thin-wall copper tubing.



VIKING

COPPER TUBE CO.

CLEVELAND 10, OHIO

PRECISION DRAWN SEAMLESS COPPER TUBE

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EVAPORATOR PRESSURE REGULATORS

*Holds
Evaporator Pressure
to a predetermined point—
ASSURES EFFICIENT COOLING
Without Freezing*

Type 760 Refrigerant
(Freon)-12

Type 432
Refrigerant
(Freon)-12

Type 220 212 to 432
Refrigerant (Freon)-12
Refrigerant (Freon)-22

Type EPS 15, 16, 18
Refrigerant (Freon)-12
Refrigerant (Freon)-22

Type EPS 15, 16
Refrigerant (Freon)-12
Refrigerant (Freon)-22

Alco Evaporator Pressure Regulators accurately maintain evaporator pressure in either a single or multiple system, guaranteeing highest evaporator efficiency regardless of load changes.



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- BUY QUALITY
- BUY ALCO

ALCO VALVE CO.

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7805

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Just completed... a spanking-new plant at Institute, West Virginia, built by Union Carbide Chemicals Company to supply 50 million pounds of fluorocarbons a year! That means new UCON Refrigerants are available now... bringing you *all* the advantages of the nation's newest refrigerants. You'll get...

UNSURPASSED QUALITY, meeting the strictest refrigeration and air conditioning industry standards for dryness and purity.

NEW PERSONALIZED SERVICE from technically-trained representatives—the UCON Refrigerants service force is the largest in the country.

ON-TIME DELIVERY from the largest network of distribution points serving the refrigeration and air conditioning industries.

FULL CHOICE OF UNIT SIZES. Meet *your* quantity needs with UCON Refrigerants supplied in standard-sized units.

TO GET FULL DATA ON UCON Refrigerants now, see your wholesaler, or write: UCON Refrigerants, Union Carbide Chemicals Company, 30 East 42nd Street, New York 17, N. Y. Call, write or wire us, any time! Attention, Dept. G-L.

"Ucon" and "Union Carbide" are registered trade marks of Union Carbide Corporation.

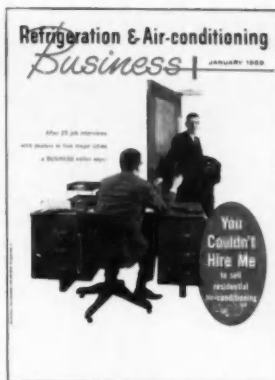


These 5 UCON Brand Refrigerants will meet your refrigeration and air conditioning needs

UCON Refrigerant 11 Trichloromonofluoromethane
UCON Refrigerant 12 Dichlorodifluoromethane
UCON Refrigerant 22 Monochlorodifluoromethane
UCON Refrigerant 113 Trichlorotrifluoroethane
UCON Refrigerant 114 Dichlorotetrafluoroethane

UNION CARBIDE CHEMICALS COMPANY Division of Union Carbide Corporation

Circle No. 4 on Reader Service Card



COVER: Just what do you know about hiring salesmen? The article on page 46 tells you what happened when an associate editor of BUSINESS went to five metropolitan areas to find a job selling residential air-conditioning. What the dealers offered—or failed to offer—reflects a serious weakness in our industry.

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Text on resolution drawn up by National Heating & Airconditioning Wholesalers

14TH INTERNATIONAL HEATING & AIR-CONDITIONING EXPOSITION

Coverage of this show, and of the annual meeting of the American Society of Heating & Air-Conditioning Engineers, is presented on pages 76-80. Included are a plat of the exhibition hall, list of exhibitors, and a summary of technical sessions.



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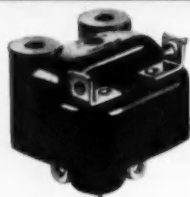
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The  Series



Klixon Motor Starting Relay REPLACEMENT KITS



Each "Star Series" Kit contains nine KLIXON Motor Starting Relays. These nine relays can handle any 115 volt, 1/12 to 1/2 h.p. domestic refrigeration relay replacement. The parts are rated by horsepower (Tecomseh Compressors). A cross-reference chart (horsepower to KLIXON Relay number) will be found on the back of every kit cover. With accessories in each kit, the nine relays can replace 159 different relay ratings.

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KLIXON Replacements: Motor Starting Relay "Star Series" Kits and Inherent Overheat Motor Protectors are stocked by the following authorized distributors:

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Arizona Refrigeration Supplies, Inc.
CONNECTICUT, Hartford 5,
N. W. Day Supply Co.
FLORIDA, Jacksonville
Graves Inc.
FLORIDA, Miami 37,
Graves Refrigeration Co.
FLORIDA, Panama City
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Graves Refrigeration Inc.
ILLINOIS, Chicago 16,
Harry Alter Co., Inc.
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George L. Johnston Co.
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Refrigeration & Industrial Supply Co.
MISSOURI, Kansas City 8,
Refrigeration Equipment Co.
NEW JERSEY, Trenton 8,
Jager's Sales & Supplies, Inc.
NEW YORK, Albany
R. D. Marshall
NEW YORK, Buffalo 5,
Jordan Supply Co.
NEW YORK, New York City
Harry Alter Co., Inc.
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OHIO, Dayton
Allied Supply Co., Inc.

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Erie Refrigeration Supplies
PENNSYLVANIA, Philadelphia 40,
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Distributors: A limited number of territories still available — contact Service Parts Manager.

METALS & CONTROLS

Spencer Division



KLIXON

CORPORATION

4901 Forest St., Attleboro, Mass.

Circle No. 5 on Reader Service Card

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formerly Commercial Refrigeration & Air Conditioning

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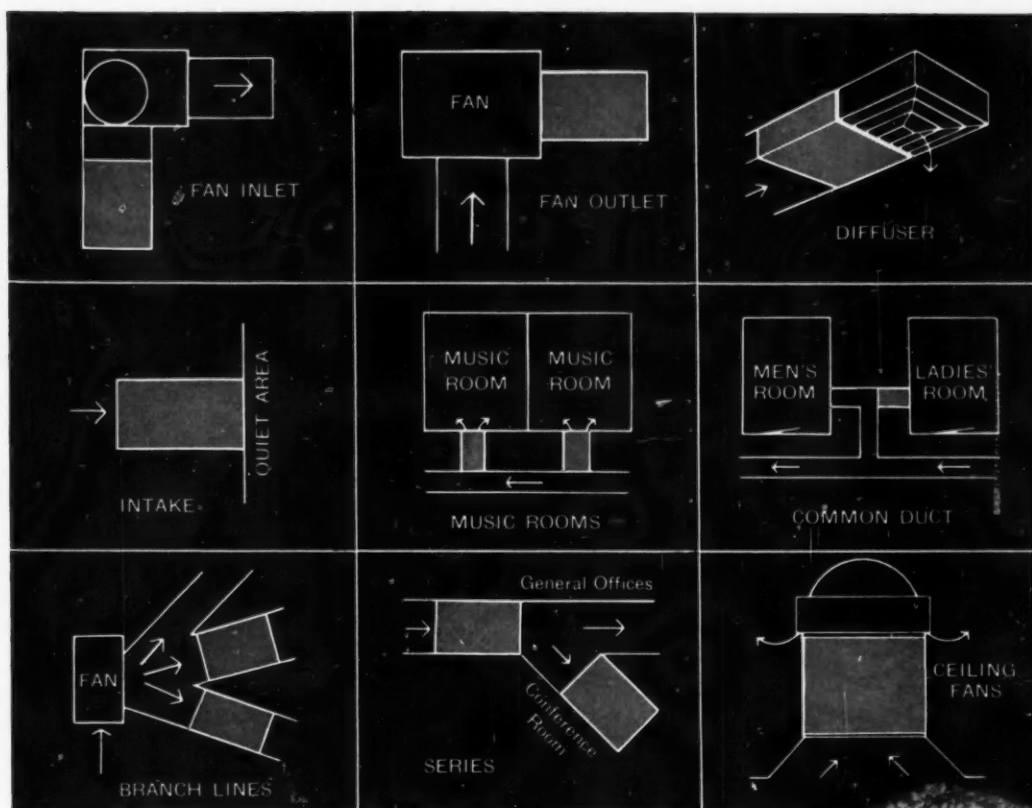
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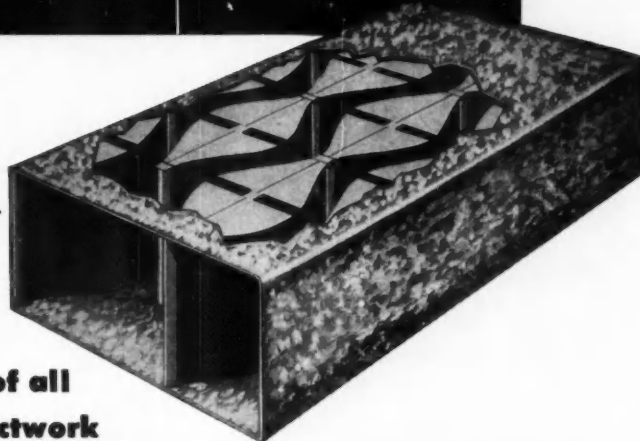
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REFRIGERATION & AIR-CONDITIONING



Every Building Needs *Aircoustat* Sound Traps



AIRCOUSTAT silences all noise of all frequencies traveling through ductwork

Eliminate disturbance, distraction and irritation caused by noises escaping from one area to another through ductwork.

Install AIRCOUSTAT Sound Traps. AIRCOUSTAT eliminates guesswork, wasted space and unnecessary expense of duct lining. You can guarantee your client trouble-free performance. You can estimate with complete confidence the perform-

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For more details, write to KOPPERS COMPANY, INC., Industrial Sound Control Dept., 7701 Scott Street, Baltimore 3, Md.

Get the inside story on AIRCOUSTAT Sound Traps at Booth # 72, Jan. 26-29, 14th International Heating & Air Conditioning Exposition, Convention Hall, Phila.



INDUSTRIAL SOUND CONTROL

Engineered Products Sold with Service

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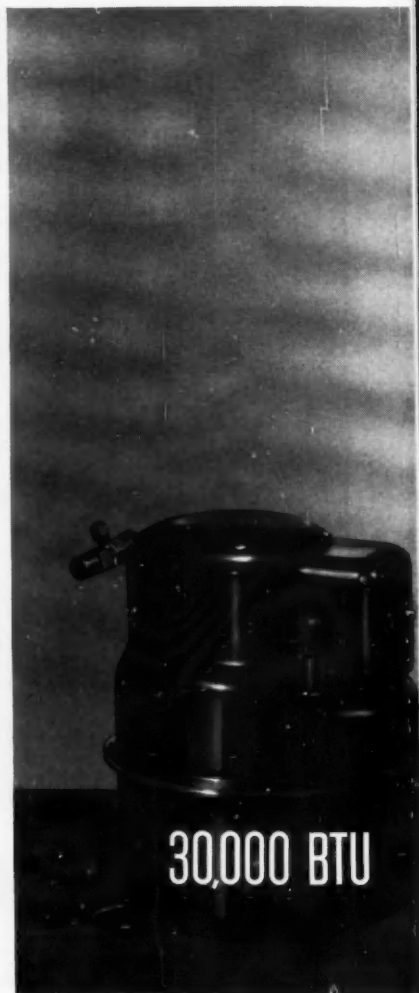
30,000

36,000

42,000

BTU SIZES

SAVE WEIGHT, SAVE SPACE, CUT COSTS !



30,000 BTU

"Let me tell you

"As a Bendix-Westinghouse engineer I have just seen the first production models of three new compressors—30,000, 36,000 and 42,000 BTU's respectively—that I am confident will help make history for the air-conditioning industry. No compressors of their size can deliver so many BTU's. No compressors of their BTU ratings were ever so small and compact. And the happy result: Now the industry can design *without compromise* for the home air-conditioning field!



about these three great new compressors"

"For an example of what I mean, look at the air conditioner market for 4-5 room houses. Until now compressors have been either too large or too small. But with the new 30,000, 36,000 and 42,000 BTU rated units you can give this mass market just what it wants.

"Here are some reasons, over and beyond capacities, that help these new compressors surpass anything now on the market.

"One important reason is the surprising savings in space. And this

smaller size is due to many factors. Better design is one. The high-speed motors are another because they allow use of smaller pistons with corresponding reductions in the sizes of the crankcases.

"The way vibration is reduced is really important too.

"Prices? I can assure you, as startling as it may seem, that these great new Bendix-Westinghouse compressors are priced lower than any other of similar capacity now on the market. In fact, prices are

reduced as much as 25%.

"And they're really compact! Width, for example, is reduced 25%; weight 40%.

"We look upon these compressors as most significant engineering contributions to the industry.

"If you design, manufacture or sell air-conditioning units, you will want further information on how these new compressors, with capacities never before available in such compact size, open up whole new markets for your products."

Bendix-Westinghouse

EVANSVILLE, INDIANA

A Division of Bendix-Westinghouse Automotive Air Brake Company, Elyria, Ohio • Export Sales: Bendix International, 205 E. 42nd St., New York 17 N. Y.

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We're Still Looking for
a Pipe Fitter
Who Doesn't
Prefer



RIDGID



"Of Course
I said **RIDGID**

... It's the only pipe
wrench for my money.
I've got work to do!"



At your Supply House



The Ridge Tool Company

Elyria, Ohio, U.S.A.

THREADED PIPE... It's Tight... It's Best... Costs Less!

Circle No. 8 on Reader Service Card

as we see it...

by Jim McCallum

Almost everyone seems to agree that business this year will show a marked improvement over 1958. Nothing spectacular, mind you. Just a slow but steady rise.

This is the spirit of cautious but confident optimism expressed in the December issue of *Dun's Review and Modern Industry* by 109 members of the magazine's "President's Panel".

1959 is viewed by the men who head many of the 500 largest companies in the U.S. as a year of gathering momentum—a year of transition to the 1960's when, barring war, genuine boom years may develop.

Most of these same men expect sales gains to average 10 to 13% during the year, with profit margins improving by 1 to 5%.

The real net gains, they say, are likely to develop from such recession-bred measures as cost cutting, increased efficiency, modernization, tighter scheduling, and inventory control, most of which they intend to continue in 1959 in an effort to strengthen profits in the face of rising costs and stiffening competition.

That's the pattern anticipated for industry in general. And from where we sit we can see no reason why it shouldn't hold equally true for the air-conditioning and commercial refrigeration business.

It looks like 1959 should be a good year for all of us—if we watch our step. And it may well prove to be the real stepping stone to the sky-high potential that we've been telling ourselves for years is "just around the corner"!

* * *

Food service has become a highly technical, highly specialized, and immensely complicated business. So much so, in fact, that the industry now recognizes college training in this field as highly desirable, if not absolutely necessary.

Just a year ago, Cornell University became the first college in

REFRIGERATION & AIR-CONDITIONING

the country to offer a major course in Food Facilities Engineering under its School of Hotel Administration. It is anticipated that graduates of this course will find employment with food equipment dealers and contractors specializing in this field, as well as with hotels, institutions, and other food service operations.

Among special studies included in this course are refrigeration and air-conditioning. It is recognized that today's food facilities engineer must know, among other things, how much refrigerated storage space would be required for any specific food service operation, what sizes and types of refrigerators should be used, what system of refrigeration would be best suited, and what benefits air-conditioning would offer.

The first year of this new course of study was financed by a limited number of food industry leaders. Now to ensure its continuance until such time as student enrollment is sufficient to make the program self-sustaining, a Food Facilities Engineering Fund has been established.

If you are interested in assuring a supply of trained people for this field, further information on the Fund may be obtained directly from the University or from the Fund's office at 205 N. LaSalle St., Chicago 1, Ill.

* * *

If you're trying to sell air-conditioning to people suffering from heart ailments or allergies, don't forget that Uncle Sam is on your team.

The Internal Revenue Service has ruled that the cost of an "air-conditioning device plus operating expenses" may be deducted as a medical expense on any individual's income tax provided that the need for the unit can be substantiated by evidence and provided that the unit does not become a part of the dwelling.

Pointing up this fact may be just what you need to get that price-conscious prospect's name on the dotted line.

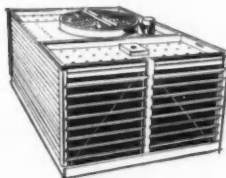
**BUY FROM YOUR
REFRIGERATION WHOLESALER**

TOWERS TOWERS TOWERS

smallest to the **LARGEST**
Now Pritchard makes 'em all

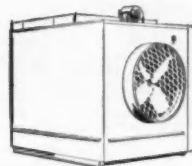
From two tons up. That's the extent of Pritchard's line of cooling towers. Reason? Merger with Dover Mfg.

Co. That added Dover's "packaged" towers to Pritchard's famous Lo Line series. Now, whatever your water cooling job, Pritchard has a tower that will exactly fit your requirements—in capacity and price. Write for catalog details.



LO LINE TOWERS

Big capacity plus a low silhouette make these towers favorites for commercial air conditioning. Both wooden and fire-code models.



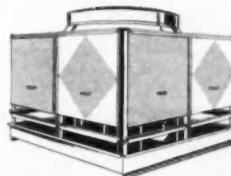
CROSS-FLOW "PACKAGED" TOWER

Hot-dipped galvanized after fabrication. Shipped assembled for fast, easy installation. Quiet, efficient.



VERTICAL TOWER

So quiet it can be used indoors. Shipped factory-assembled for fast installation.



PANELRAMIC TOWER

Exclusive colored panel feature permits tower to be used as company identification sign, or as distinctive design element of building.



NATURAL DRAFT TOWER

Economical way to handle water from small capacity systems. Sets up in 20 minutes, gives years of maintenance-free service.

J.F. Pritchard & Co.
OF CALIFORNIA

4625 Roanoke Parkway, Dept. 130
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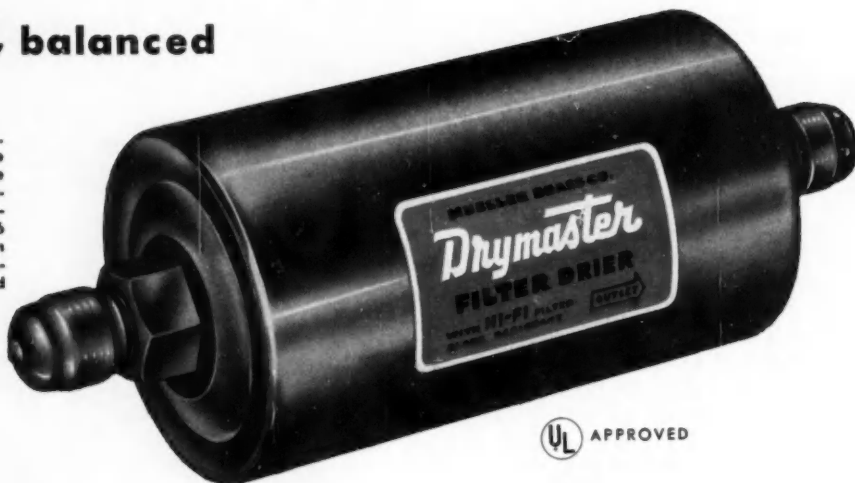
ONE-STOP GET ALL THESE FROM

**ONLY MUELLER
BRASS CO.** offers a complete
line of products for every refrigera-
tion need . . . Available at better
wholesaler's everywhere.

When you buy Mueller Brass Co. Streamline refrigeration products, your purchasing problems are simplified. For, in just one stop, your wholesaler can supply you with all the products you'll need to complete any commercial refrigeration installation. Mueller Brass Co. refrigeration products are available in the most complete range of styles and sizes in the industry . . . They more than meet the most rigid quality and code requirements.

Drymaster balanced filter driers

"Hi-Fi" filter block desiccant . . . super-fine monel screen filter tube and inlet distributor disc help give Drymaster superb filtering and drying properties. Drymasters are available in six different models with 36 different end connection sizes in flare and solder types. Copper extensions allow the use of either hard or soft solder . . .



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MUELLER BRASS

VAMPCO ALUMINUM PRODUCTS, LTD., STRATHROY, ONTARIO

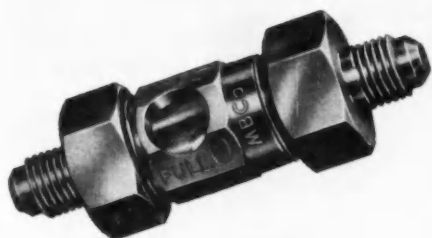
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REFRIGERATION & AIR-CONDITIONING

SHOPPING

REFRIGERATION PRODUCTS

ONE DEPENDABLE SOURCE!



Sightmaster
liquid indicators

Tells at a glance the condition of refrigerant. Available in sizes from $\frac{1}{4}$ " through $\frac{3}{8}$ " interchangeable male flare, female flare and solder end connections. This makes possible 42 combinations ready for installation on any system.



Safetymaster
pressure-relief valves

Provide positive action and high volume discharge without chatter or vibration. Available in safety-sealed standard pressure settings from 150 to 450 lbs. in straight through and angle types. Meets A.S.A. B 9 safety code, certified by National Board.



New, revolutionary slide-guide helps you select the correct Drymaster filter drier for every installation quickly and easily... Available free... Send for yours today.

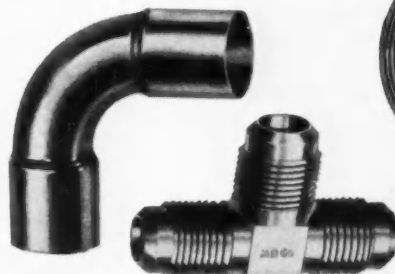
Globemaster
packed valves

Carefully engineered and constructed of highest grade materials to give long trouble-free service on every installation. Made in straight-through, angle, two-way and three-way models either backseating or non-backseating types.



Streamline
copper tube and fittings

Fine quality cleaned dehydrated and sealed copper tubing of uniform soft temper for easy bending and hard-drawn copper tube in straight lengths in a variety of sizes. A complete line of high quality solder-type fittings manufactured from seamless copper tubing and flare fittings from forged brass or brass rod.



Big, fact-filled catalog R-157 gives complete information on all Mueller Brass Co. refrigeration and air conditioning products. Get your copy today.



Linemaster valves

Feature super-sealing with triple diaphragm construction. Linemaster regular (non Backseating) and Linemaster Special (Backseating) are available in two-way, three-way, straight-through and angle, plus hand expansion and purge types in all popular end connections.

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267

CO. PORT HURON 14, MICHIGAN

Exclusive Canadian Representative for Mueller Brass Co. Air Conditioning and Refrigeration Products

Circle No. 10 on Reader Service Card

ABOUT

People

Dole Refrigerating Co. and Dole Refrigerating Products Ltd. have



Timbs

announced four new appointments. **Gordon L. Timbs** has been named to the newly created job of service manager. **Arthur E. Hodson** has been retained as inspector-foreman. **Charles R. Huston** has been made senior design engineer. **Joseph P. Apple** has been added to the engineering department.

Thomas Shotton has been named to represent Evansville Div., of Bendix-Westinghouse Automotive Air Brake Co. Shotton will cover portions of Maryland, Pennsylvania, and Virginia, and all of the Washington, D. C. area. He has been in the commercial refrigeration and air-conditioning field since 1931.

R. E. Kenney has been appointed representative for air-conditioning and refrigeration products in Minnesota, for Recold Corp. Kenney's offices are located in Minneapolis, Minn.

York Div., Borg-Warner Corp., has named **Ben L. Williams, Jr.**



to fill the newly-created position of director of public relations. Williams was formerly manager of the public relations division, VanSant, Dugdale & Co., Baltimore, Md., advertising agency. In his new position Williams will be responsible for all elements of the company's public relations, publicity and general external information services.

Cobell Industries, Inc., has appointed **George Lucas** as national sales manager. Lucas will head national sales of the firm's "Rangaire" air-conditioning and heating equipment. He joined the company from Mitchell Mfg. Co., where he served as regional sales manager.

The appointments of two district managers and two sales office managers have been announced by the plumbing and heating division of American-Standard. New district managers are **Thomas F. Brady** in the Pacific sales district and **Donald E. Sander**, south central sales district. Brady replaces Edward J. Duke, and Sander replaces Lester L. Graves, who



Brady



Sander

will continue as district manager consultants. New sales office managers are **Roy O. Lovell, Jr.**, in the New Orleans office, and **Dale W. Pearson** in San Francisco. Brady joined the company in 1947 as a salesman in the division's New York showroom. Sander has been with the firm since 1936, first as a salesman in the midwest and later in Texas. Lovell, who replaces Sander in New Orleans, joined American-Standard in 1951 as a sales promotion co-ordinator. Pearson, who takes over Brady's spot in San Francisco, joined the firm in 1946.

Four new assignments have been announced by Taco Heaters, Inc. **William P. Haney** has been named to the position of district sales and service manager, Chicago

district. **Vincent F. Callahan** has been appointed district sales manager, New England district. **Alton P. Dieffenbach** has taken over as manager product planning. A new post for **Peter L. Quattrochi** is that of manager of customer services.

Robert Allan has been appointed sales representative in the Detroit area for



Wolverine Tube Div. of Calumet & Hecla. Allan replaces Jack Gavigan. Formerly sales representative in the Grand Rapids area, Allan will sell copper, copper alloy and aluminum tubular products, and extruded aluminum shapes. He will headquarter in Detroit.

Edward A. Malling has been appointed to the newly created position of vice president of marketing for Flexonics Corp. Malling joins the corporation after 23 years with General Electric where he had been manager of marketing for specialty electronics components.

Albert E. Kornhauser has been appointed treasurer of Controls Co. of America. Kornhauser succeeds John Ruane.

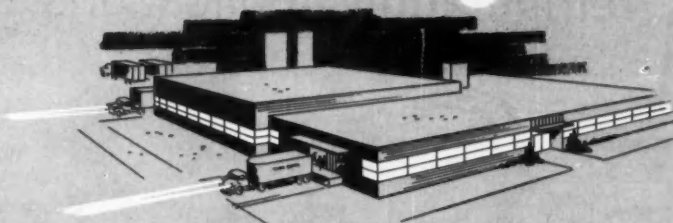
The appointment of two new regional sales managers and one new branch manager is announced by Minneapolis-Honeywell Regulator Co. **R. B. Grant** has been named manager of the Rocky Mountain region and **J. T. Pitts**



Grant

has been appointed to a similar post in the southwest region. Grant, former manager of the company's Los Angeles branch office, succeeds E. A. Thompson, who has been transferred to Los Angeles on a special

a "sleeper" market that
keeps men awake nights...



Crystal Tips[®] manufacturing

facilities are working 24 hours a day
to keep up with accelerated demands
for Crystal Tips ice makers

That's why it surprises us that some very good
refrigeration distributors still hesitate to include
a line of ice makers in the products they sell.

If you're one of those who are skeptical about
the profits that can be made and the big market
that is still barely touched, you haven't investi-
gated what Crystal Tips has to offer! Let us
show you how Crystal Tips distributors are
cashing in on this "sleeper" market. We've got
facts and figures that prove that this is an
awake, alive and big market!

More men are selling Crystal Tips than ever
before, and they're making more money with
Crystal Tips *than with any other ice maker.* If
you want more sales and bigger profits, write,
wire or phone us now, while this ad has your
attention.

Models illustrated read-
ing clockwise from top:
B-300-B, B-300-B, B-1,
B-200-B. Capacities from
45 lbs. up to 1/4 ton
per day.



First Name in Automatic Ice Makers

American **AUTOMATIC
ICE MACHINE COMPANY**

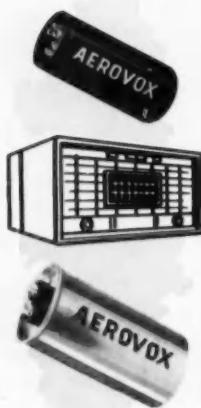
1971 Park Avenue N. W., Faribault, Minn. • Phone 4-5501



A DIVISION OF
McQUAY, INC.

IT PAYS TO BE A CRYSTAL TIPS DISTRIBUTOR

AEROVOX has the **right** replacement capacitor for those air-conditioning and refrigeration applications!



Don't waste valuable time shopping around for the proper replacement capacitor. Save all that time and money by calling on your local Aerovox Distributor for ANY and ALL of your AC Capacitor requirements. You'll find your local Aerovox Distributor your "one-stop" supply source because he stocks and sells the **complete** line of Aerovox motor-start and motor-run capacitors to meet **every** replacement application.

Aerovox capacitors stay on the job longer because they are built better. Aerovox has supplied the major portion of AC capacitors to original equipment manufacturers. The same high quality materials and superior construction are incorporated into all units for replacement applications. Don't settle for "second-best" replacement parts, buy the best for the best in service...**BUY AEROVOX!**

Write for name and address of your nearest Aerovox Distributor.

AEROVOX CORPORATION

DISTRIBUTOR DIVISION

NEW BEDFORD, MASS.

Circle No. 12 on Reader Service Card

sales assignment. Grant will headquarter in Denver and direct activities in Colorado, Utah, Wyoming, and parts of New Mexico, Nevada, Idaho, Oregon, and Montana. As southwest region manager in Dallas, Pitts succeeds R. L. Mallory, sales manager of Honeywell's industrial products group in Philadelphia. Pitts, branch man-



Pitts



Adams

ager in Houston since 1952, will handle sales and service activities in Texas, Oklahoma, Kansas, Louisiana, and parts of New Mexico, Missouri, Arkansas, and Mississippi. Named to succeed Pitts is **C. D. Adams**, since 1952 commercial sales manager at the Houston branch office.

Roy C. Hauck, former general manager of Ingersoll Conditioned Air Div., Borg-Warner Corp., has been named president and a director of Southwest Mfg. Co., wholly-owned subsidiary of F. E. Myers & Bro. Co. **Leonard**



Hauck

Bisby, former chief engineer and plant manager for Southwest, has been promoted to vice president. **Curtiss Ginn Jr.**, Myers president who served in a dual capacity as Southwest president, becomes chairman of the board of directors of Southwest. **M. G. Moses**, controller for Myers, resigns as vice president and general manager, but remains as secretary-treasurer.

At a meeting of the board of directors, McIntire Co., **John C. Howe, Jr.** was elected chairman of the board, and will continue as treasurer and chief financial offi-



Don't omit
the essential
ingredient
in selling...

**COMPLETE YOUR PROPOSAL
WITH FINANCING ON THE**

COMMERCIAL CREDIT PLAN

Most prospects need their cash reserves and usual lines of credit for current operation. Make it easier for them to sign on the dotted line by including financing arrangements. **COMMERCIAL CREDIT's** Refrigeration Plan has become an essential part of the proposal of so many refrigeration and air conditioning companies.

COMMERCIAL CREDIT's Refrigeration Plan is tested by time and experience in handling the financing for thousands of commercial installations. Let us show you how **COMMERCIAL CREDIT's** experience and know-how can save you time and money . . . and help you close sales with less delay. Call the nearest **COMMERCIAL CREDIT** office or write **COMMERCIAL CREDIT CORPORATION**, 300 St. Paul Place, Baltimore 2, Md.



ANOTHER SERVICE OFFERED BY AFFILIATES OF COMMERCIAL CREDIT CORPORATION

Circle No. 13 on Reader Service Card

cer. At the same meeting **J. G. Beierlein** was elected president, to succeed the late **Lester S. Dunn**. **Cullen M. Cooper** and **Edward S. Chatlos** were appointed vice presidents. **S. M. Smith** remains as secretary, and **Joseph P. Flynn** remains as assistant secretary-treasurer.

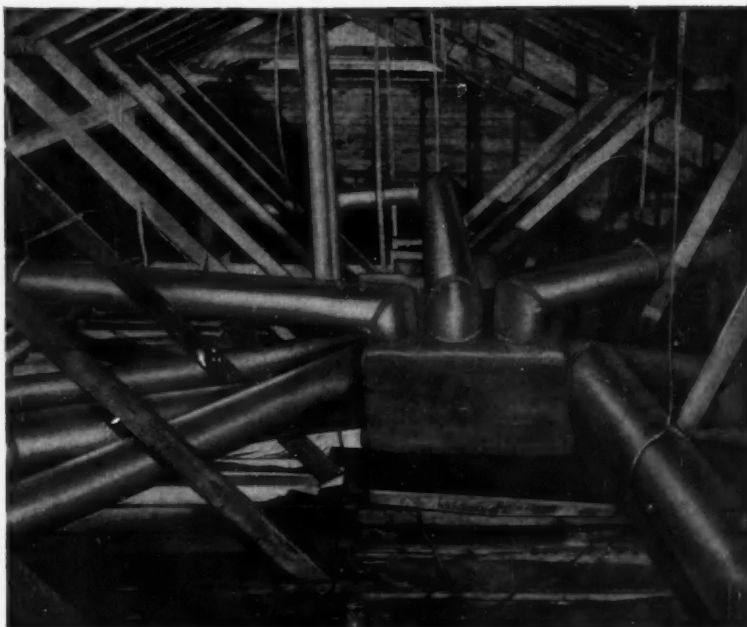
Detroit Controls Div., American Radiator and Standard Sanitary Corp., has announced the appointment of **Phillip J. Kreissl** as president. Kreissl succeeds **W. A. Haist, Jr.**, who has resigned. Kreissl joined the company as a sales trainee in 1941. He has served as manager of the east central regional office, and was later named marketing planning manager, and subsequently general manager, sales and training.



Lee D. Callans, 47, a sales manager for General Chemical Div., Allied Chemical Corp., died of cancer Nov. 23. Since 1954, Callans headed sales of the firm's "Genetron" propellants to the aerosol industry and refrigerants to the original equipment market.

Promotion of **Frederick J. Laughna** to director of branch operations for Chrysler Corp.'s Airtemp Div. has been announced. Laughna, who has been manager of Airtemp's New York branch, will now headquarter at Dayton. He joined Chrysler in Detroit as sales distribution coordinator in the Export Div. in 1933. He was transferred to Airtemp in 1940.

Two sales executives have been promoted by Gibson Refrigerator Co., division of Hupp Corp. **Milo J. Chavez**, formerly field sales



Have you tried new G-B DUCT for HEATING?

Contractors who *have* will tell you that it's the answer to more satisfied customers and more satisfactory profits!

G-B Duct is the first prefabricated round air duct molded from fine glass fibers. It comes in 6-ft. sections in standard sheet metal pipe sizes, ready to use—no preassembly required. Because it is made of insulation that is *both thermal and acoustical*, G-B Duct holds heat loss to an absolute minimum, eliminates duct and transmitted equipment noises. And because G-B Duct is encased in a tough, airtight plastic vapor barrier, the ductwork is "all set" if the customer decides to add air conditioning later.

G-B Duct has been approved by leading furnace manufacturers, by local building codes and is listed by Underwriters Laboratories. For more information, see your local supplier or write for samples, prices and complete technical data . . . today!

See G-B Duct in Booth 547 at the
International Heating & Air Conditioning Exposition
Philadelphia — January 26-29

GUSTIN-BACON

228 W. 10TH ST., KANSAS CITY, MO.

Thermal and acoustical glass fiber insulations

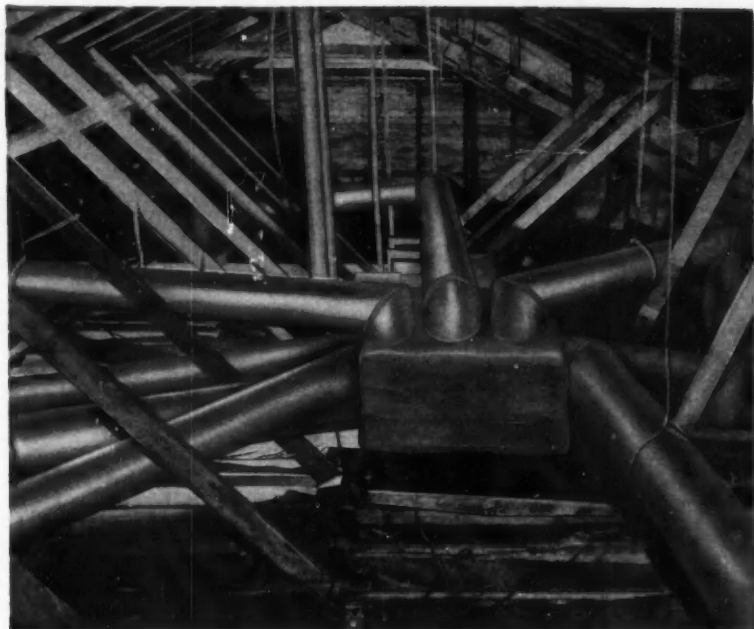
• Pipe couplings and fittings

Molded glass fiber pipe insulation

Circle No. 14 on Reader Service Card

REFRIGERATION & AIR-CONDITIONING

Manufacturing Company **gb**
BACON



Have you tried new G-B DUCT for AIR CONDITIONING?

For a dual temperature system, or the self-contained attic units, there's *nothing* like G-B Duct — the prefabricated round air duct molded of fine glass fibers.

- It provides **positive thermal insulation** because walls are made of glass fiber insulation and wall thickness and density are uniform.
- It's an **excellent sound absorber** — a 6-ft. length of G-B Duct reduces the loudness level of duct noise by more than 50%!
- It effectively **prevents condensation** because it is encased in an airtight plastic vapor barrier.

G-B Duct comes in lightweight, one-piece 6-ft. sections, ready to use. No preassembly, no folding. Anyone can do a professional job without special tools — and in a minimum of time! If you are interested in a duct system that offers *positive performance, foolproof installation and lower costs*, see your local supplier or write for samples, prices and complete technical data on new G-B Duct . . . today!

See G-B Duct in Booth 547 at the
International Heating & Air Conditioning Exposition
Philadelphia — January 26-29

GUSTIN-BACON Manufacturing Company 
228 W. 10TH ST., KANSAS CITY, MO.
Thermal and acoustical glass fiber insulations • Pipe couplings and fittings
Molded glass fiber pipe insulation

Circle No. 14 on Reader Service Card

BUSINESS • JANUARY 1959

manager of room air-conditioners, has been named manager of central air-conditioner sales. Chavez succeeds **A. F. Johnson**, who has been assigned to Typhoon Air Conditioning Co., another division of Hupp Corp.

P. G. G. Delahunt has been appointed product sales manager, Decatur products, at Worthington Corp. Air-conditioning and Refrigeration Div. Delahunt will be responsible for packaged air-conditioners, air handling units, and evaporative condensers. He joined Worthington in 1949 and served in various sales capacities prior to his latest assignment in 1954 as assistant to product sales manager, central station products.



G. G. Workinger, general sales manager, and **Henry B. Williams**, chief engineer, have been elected vice presidents by the board of directors of McQuay, Inc.



Workinger



Williams

Workinger, who will head sales, joined McQuay in 1957, after 20 years with York Div. of Borg-Warner Corp. Williams, who will be in charge of engineering, joined the firm in 1943.

O. S. McGuffey, 62, former chief engineer at Tranter Mfg., Inc., died recently at his home in Lansing, Mich.

The appointment of **George K. Hoyer** as regional sales representative has been announced by Bally

Case and Cooler Co. Hoye will cover southern Illinois and Indiana, parts of Kansas and Tennessee, and all of Missouri.

Two personnel changes have been made by Weber Showcase & Fixture Co., Inc. **J. L. Kaufhold**, vice president, has been placed in charge of local refrigeration divi-



Kaufhold



Schulz

sions. **Fred M. Schulz** has been promoted to vice president and will head national sales. Kaufhold has been with Weber for 35 years. Schulz joined Weber 15 years ago.

Guy A. Voorhees, outstanding contributor in the advancement of the warm air heating and cooling industry, died Nov. 7 in Indianapolis, Ind. Voorhees was technical secretary of the National Warm Air Heating and Air Conditioning Association from 1946 until 1958.

Richard A. Cobb has been appointed sales engineer in the national accounts department, Typhoon Air Conditioning Co., Div. of Hupp Corp. Cobb joined Typhoon from Frigidaire where he was a member of the national accounts staff.

John J. Hildebidle has been named general manager, Berger Furnace Div., Burnham Corp. Hildebidle joins the company from Mathes Co. He has also been with International Heater Co.

William T. Lane has been elected vice president of Carrier Corp. In his new position Lane will be in overall charge of corporate relations. He will assume

his new responsibilities on January 1, with headquarters in Syracuse, N. Y. Meantime, he will dispose of the William T. Lane Co., advertising and public relations firm.

Clyde E. Weatherwax, 76, chairman of the board and one of the founders of Acme Industries, Inc., died Oct. 13, at Jackson, Mich. Weatherwax, with his two brothers, founded Acme in 1919.

Robert S. Hall has been promoted to manager of personnel and industrial relations from assistant manager of industrial relations, at National-U. S. Radiator Corp. Hall joined the corporation's Viking Air Products Div. in 1957 as personnel manager and early this year was transferred to the Johnstown headquarters.

Two changes in Kelvinator's commercial division at Dallas and Detroit have been announced. **Robert W. Fell**, former commercial sales representative at Detroit, has moved to Dallas, succeeding L. W. Klein, who has re-



Fell



Witte

tired. **Robert F. Witte**, formerly division office manager, has taken over the duties of Fell at Detroit. Fell joined Kelvinator in 1935. Witte joined the firm in Detroit in 1947 as supervisor of the tabulating department.

Richard R. Rough Jr. has been named director of advertising and sales promotion for Chrysler Corp.'s Airtemp Div. Rough comes to Airtemp from his position as manager of advertising and sales promotion for the Home

Heating and Cooling Dept. of General Electric Co.

Maurice J. Wilson has been appointed sales manager, commercial air-conditioning for Unitary Equipment Div., Carrier Corp. Wilson will direct the sale of self-contained and engineered air-conditioning products. His 27-



year association with the company has included supervision of year-round air-conditioning systems in prominent structures throughout the world.

CHESTER L. MAY NAMED ARKLA BOARD CHAIRMAN

Chester L. May has been elected chairman of the board of directors of Arkla Air Conditioning Corp. May retired recently as senior vice president of Lone Star Gas Co., Dallas, Tex.

At the same meeting the Arkla board elected Robert K. Eskew, Evansville, Ind., a vice president. Eskew is director of research, development, and engineering for Arkla.

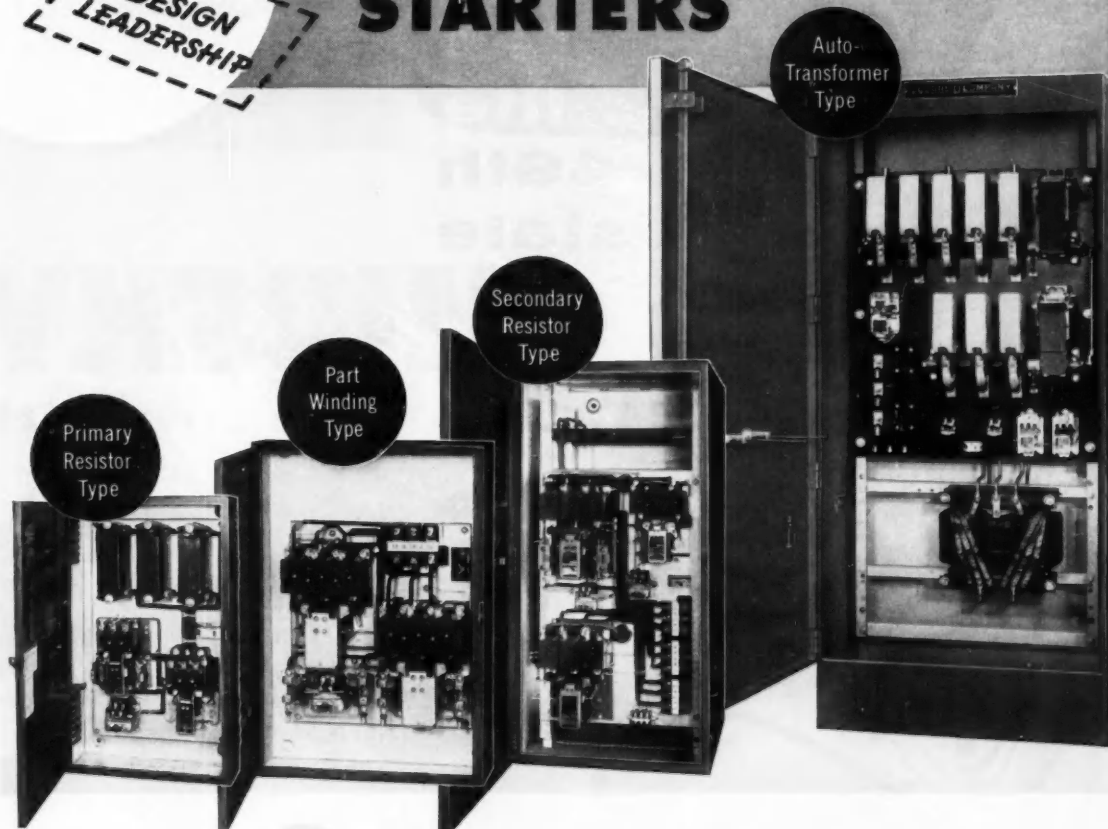
Other new officers and directors elected were: W. R. Stephens, president; D. W. Weir, E. N. Henderson, and L. E. Walbridge, vice presidents, F. L. Holleman, secretary and assistant treasurer; James E. Chisum, treasurer and assistant secretary; and Carlisle M. Schrader, assistant treasurer.

Directors: Stephens, Weir, Henderson, L. L. Baxter, B. E. Harrell, Dallas P. Raney, W. W. Selzer, S. R. Walker, and C. H. Zachry.

MECHANICAL air-conditioning and refrigeration industry antiques are described in pictures and copy in a booklet available from Recold Corp., 7250 East Slauson Ave., Los Angeles 22, Calif. The booklet is based on the Recold Museum of Air Conditioning and Refrigeration, and includes the heat operated Lake Breeze Fan, the Audiffren refrigerating machine, the Icyball and many others.



SQUARE D *Reduced Voltage* STARTERS



One of these **4** types will meet your requirements... *best*

- Is minimum motor current inrush your primary consideration?
- Is it reduced starting torque? Or maximum smoothness in acceleration?
- Is cost an important factor?

With these four types Square D can meet any reduced voltage starter requirement—exactly.

Write for Reduced Voltage Starter Bulletins. They give complete details.
Address Square D Company, 4041 N. Richards Street, Milwaukee 12, Wisconsin.



NOW... EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE!

SQUARE D COMPANY

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NEW

as
the
49th
state

HUSKY FOR



Husky Straight Tees — No. 211
2" through 6"



**SEVEN
WAYS
BETTER**



easy to install

Cut pipe to length,
place in position and
weld. No expensive
threading operations,
no back-breaking ef-
fort of wrenching.

* Fabricated from A106B seamless carbon steel tubing with
minimum wall thickness of Schedule 40 tube in comparable sizes.

Circle No. 17 on Reader Service Card



Welded installations are generally conceded to be superior in all respects, but the high cost of available fittings has curtailed their use to any great extent in low-pressure systems. *Husky* fittings now supply the answer. They are made especially for 150 lb. welded systems . . . and are priced to make installed cost the same or less than that of threaded installations.

WELDING FITTINGS

150 lb. INSTALLATIONS*



Husky Reducing Tees—No. 211R
2" x 2" x 3/4" through 6" x 6" x 5"



Husky 90° Elbows—No. 207
2" through 6"



Husky 45° Elbows—No. 206
2" through 6"



Husky Reducers—No. 201
2" x 1 1/4" through 6" x 5"



leakproof

Fittings and pipe are joined by metallic bond. Security of joints does not depend upon strength used in wrenching.



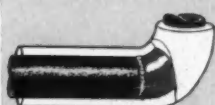
smooth flow

Inside diameter of fitting and pipe meet exactly . . . with no step-ups or downs as in a threaded system.



lighter weight

Since ends of fittings need not encompass the pipe, considerable savings in weight is accomplished.



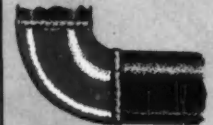
easily insulated

Outside diameter of pipe and fittings are identical for easy application of insulation material.



better appearance

The smooth, flowing lines of a welded piping system present a much more pleasing and professional appearance.



double strength

Full wall thickness is maintained throughout the system, rather than being reduced by one-half at joints due to threading.



SEND FOR
CATALOG

NISCO INC.—Dept. JS—6901 Elkhart, Indiana

Please send your new Husky Catalog H-1 without cost or obligation.

name _____
firm _____
address _____
city, state _____
☐ Please also send address of nearest supplier.

HI-BOYS
GAS—80,000 to 140,000 Btu input
OIL—84,000 to 112,000 Btu output



LO-BOYS
GAS—85,000 to 250,000 Btu input
OIL—84,000 to 448,000 Btu output

CONVERSION BURNERS
GAS—70,000 to 300,000 Btu input
OIL—75 to 3.0 G.P.H.



HORIZONTALS
GAS—60,000 to 140,000 Btu input
OIL—84,000 to 224,000 Btu output



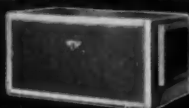
COUNTERFLOS
GAS—70,000 to 110,000 Btu input
OIL—84,000 to 112,000 Btu output



REMOTE HEAT PUMPS
3 to 5 tons

HORIZONTALS

Self-contained and unit coolers—
air cooled—2 to 5 tons



COMPRESSOR UNITS
Air cooled for remote
installations—2 to 5 tons



STORE UNITS
3 to 5 tons



FURNACE PLENUM SYSTEMS
Air cooled—2 to 5 tons



ALSO: Gravity units for oil and gas, coal fired steel furnaces,
blower package units, packaged pipe and fittings.

**AIR CONDITIONING
CONTRACTORS:**

Multiply your profits with our
unsurpassed heating line.
Our sales engineer near you has all
the details. Write today.

**This
is**

INTERNATIONAL OF UTICA 1959

Since we started in 1842, there have been

GOOD TIMES . . .

DEPRESSIONS . . .

WARS . . .

and a veritable **REVOLUTION** in the heating and
cooling fields!

Today, 117 years later, we can point with pride to our
complete lines, our advanced engineering features,
our dependable distributors, our loyal dealers and our
millions of satisfied customers all over the world.

Why not join our family in 1959?

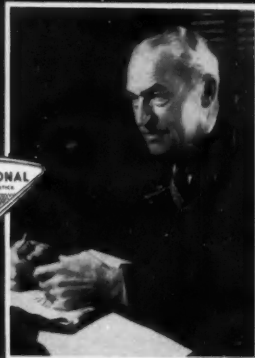


SINCE 1842

**it's a
pleasure
to do business with . . .**

Circle No. 18 on Reader Service Card

...AND THE MEN BEHIND THE NAME



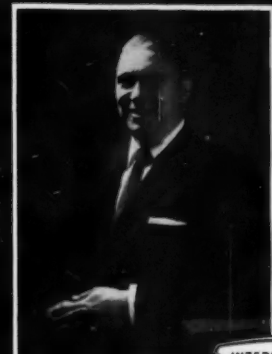
HAROLD F. RANDOLPH
President
35 years of
International service



MURRAY WHEELER
Executive Vice-President
26 years of
International service

ALBERT I. WHITELEY
Vice-President, Sales
22 years of
International service

DONALD G. HOFFMAN
Secretary and Treasurer
30 years of
International service



Write for free catalog and name of nearest INTERNATIONAL distributor

...INTERNATIONAL HEATER COMPANY

UTICA, NEW YORK

\$20,000⁰⁰ IN PRIZES

FREON® "PARTNERS IN PROFIT" CONTEST

1ST PRIZE

CHEVROLET STATION WAGON!



1959 Kingswood
with air conditioning, air
suspension, power steering,
radio, heater, automatic
transmission . . .

fully equipped . . . \$4,000



Hints to help you win

Your complete air conditioning and refrigeration wholesaler is your partner in profit. It will pay you to know and use his services, cultivate his friendship. Here are some of the benefits you get by dealing through your wholesaler.

- **Convenience** of buying at a one-stop supply source. Your wholesaler keeps ample, diversified stocks of high-quality air conditioning and refrigeration parts, equipment and supplies.
- **Immediate delivery** by your wholesaler permits you to give prompt, dependable service—imperative in emergencies.
- **Cost savings** because your wholesaler assumes expense of inventory, warehousing, shipping, accounting and insurance.
- **Expert technical and engineering help** when you want it. Your wholesaler assists with design problems, figuring material costs; gives catalog service, prices and up-to-date information on new products.

"Freon" Check List

Look for this list of premium qualities of "Freon" refrigerants on your official entry blank. Check the one you consider most important.

- ☐ Time-tested—over 27 years in use—you can't go wrong with "Freon."
- ☐ Stable, pure and dry.
- ☐ Factory-sealed for purity.
- ☐ Nontoxic, nonflammable.
- ☐ Always available—anywhere in the world.
- ☐ Made by Du Pont—backed by years of technical and manufacturing leadership.

Insist on genuine "FREON"—Premium Quality Refrigerants . . . in the cylinders with the gold-band caps.



Better Things for Better Living
... through Chemistry

"FREON" PRODUCTS DIVISION
E. I. DU PONT DE NEMOURS & CO. (INC.)
WILMINGTON 98, DELAWARE

*From and combinations of Freon- and F- followed by numerals are DuPont's registered trademarks for its fluorinated hydrocarbon refrigerants.

3-2ND PRIZES



\$1,000
UNITED STATES
SAVINGS BONDS

5-3RD PRIZES



RCA VICTOR
"MARK 21" COLOR TV
worth \$495 each

25-4TH PRIZES



POLAROID
"HIGHLANDER"
CAMERAS
worth \$72.75 each

250-5TH PRIZES



WESTINGHOUSE
TRANSISTOR
PORTABLE RADIOS
worth \$39.95 each

-284 CHANCES TO WIN!

CONTRACTORS, SERVICE MEN . . . You are eligible to win an air-conditioned 1959 Chevrolet station wagon if your company has bought Freon® refrigerants from a complete air conditioning and refrigeration wholesaler within the contest period (January 26, 1959—May 15, 1959). Read over the simple rules and hints to help you win. Then just tell us why you think it's good business to deal with a *complete air conditioning and refrigeration wholesaler*. It's easy! Enter often! You can get official entry blanks through your wholesaler. Ask him about the Freon® "Partners in Profit" Contest today.

SIMPLE CONTEST RULES:

1. Contest is open to all firms and their employees who are customers of complete air conditioning and refrigeration wholesalers providing that the customer firm purchases "Freon" refrigerants from a complete air conditioning and refrigeration wholesaler during the contest period (January 26, 1959 to May 15, 1959). Employees of E. I. du Pont de Nemours & Co., its subsidiaries, its agencies or its wholesale distributors of "Freon" refrigerants are not eligible to enter the contest.

2. Check the quality of "Freon" most important to you.

3. Complete this statement in 35 additional words or less: "I believe it is good business to deal through a complete air conditioning and refrigeration wholesaler because . . ."

Mail your entry to: **FREON® CONTEST, Box 337**
Mount Vernon 10, New York

Entries must be postmarked by May 15, 1959, and received by us at least within eight days of this date.

4. You may enter as often as you like. Your entry must be your own original work and must be submitted in your own name, on an official entry blank, obtainable through your complete air conditioning and refrigeration wholesaler.

5. Prizes awarded by Reuben H. Donnelley Corp., on the basis of their judgment regarding originality, sincerity and aptness of thought. Duplicate prizes awarded in case of tie.

6. Judges' decisions are final. All entries and ideas become the property of E. I. du Pont de Nemours & Co. (Inc.). None will be returned. Contest is subject to federal, state, and local regulations.

7. Winners will be notified about six weeks after close of contest.

See the big prizes on display at the ASHAE show, Philadelphia.
Visit the "FREON" refrigerants booth and enter the contest!

Circle No. 19 on Reader Service Card

REFRIGERATION & AIR-CONDITIONING

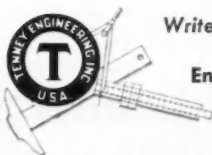
LOW-COST, EASY TO INSTALL, EASY TO SERVICE LINE

**for Back Bars, Reach-Ins,
Direct-Draw Bars,
Under-Counters, Low Boys**



TENNEY all-new, all-aluminum mx unit coolers

- RUSTPROOF, LIGHTWEIGHT ALUMINUM CASE
- COIL CONSTRUCTION completely non-ferrous
- MINIMUM PRESSURE DROP CIRCUITING, conservative ratings
- AMPLE ROOM FOR TX VALVE
- EASY TO INSTALL, keyhole slotted hangers on unit
- FACTORY ASSEMBLED unit hangers, drain fittings
- 2-WAY MOUNTING standard factory equipment on MX-9 through 17
- QUIET, EFFICIENT fan and motor combinations
- LIFE LUBRICATED standard motors; easily replaced in field



Write for Bulletin 118-58

**Engineers and Manufacturers
of Refrigeration and
Environmental Equipment**

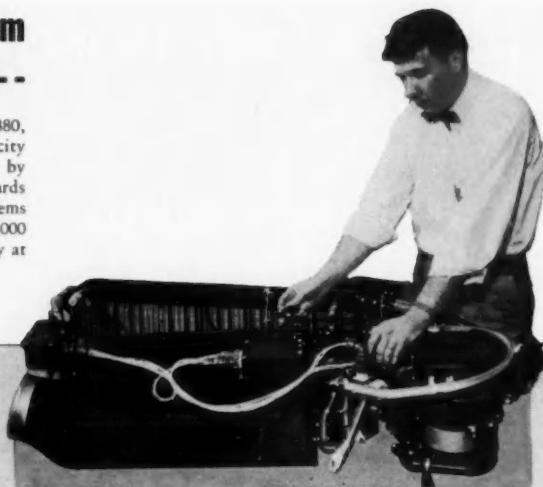
Tenney
ENGINEERING, INC.

1090 SPRINGFIELD ROAD, UNION, NEW JERSEY • PLANTS: UNION, NEW JERSEY AND BALTIMORE, MARYLAND

Circle No. 20 on Reader Service Card

Revolutionary air-conditioning system designed by HAMILTON-STANDARD--

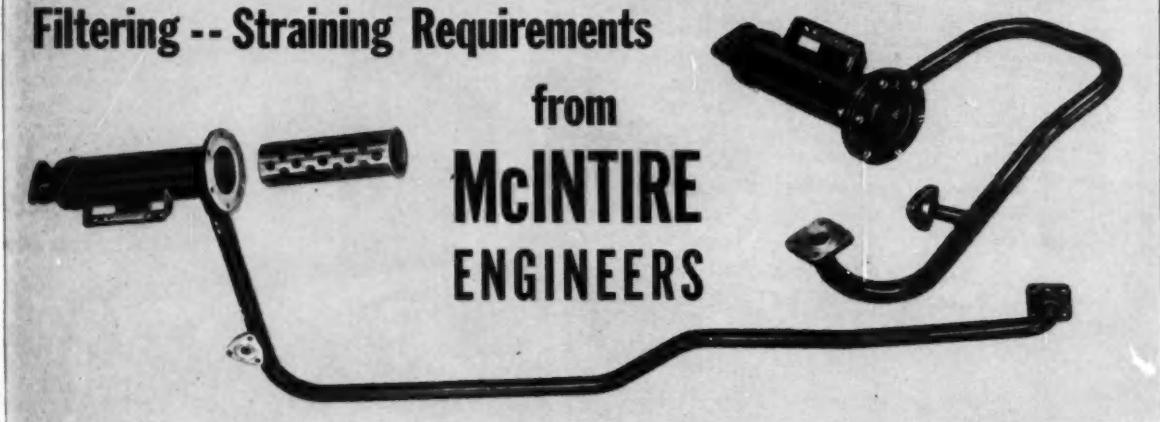
The new Boeing 707, now in commercial service, and the new Convair 880, now in production, are the first jet airliners equipped with high capacity refrigerant-cooled air conditioning systems. Designed and built by Hamilton-Standard div. of United Aircraft Corp., to totally new standards of efficiency, weight and space savings, these 20-ton capacity systems weigh only 430 pounds fully charged, instead of the conventional 2,000 pounds! They provide draft-free, controlled temperature and humidity at 100 degrees ground level or sub-zero stratosphere heights.



-- gets solution
to unusual Drying --

Filtering -- Straining Requirements

from
**McINTIRE
ENGINEERS**



Installed in the new jet airliners



BOEING 707

and



CONVAIR 880

These drying-filtering-straining units were designed and fabricated by McIntire to equally unprecedented specifications for weight, space, capacity, pressure drop and easy servicing.

McIntire engineers successfully developed a unit weighing only $1\frac{1}{4}$ pounds, saving 17 pounds in weight and reduced to $\frac{1}{5}$ the conventional size, with only a pressure drop of less than 1 pound per square inch. This was accomplished by using light alloys and a unique built-in by-pass principle, so that drying-filtering-straining are handled with a single replaceable cartridge in a lightweight housing, complete with tubing and flanges, ready for installation.

**When it comes to Drying and Filtering --
COME TO McINTIRE!**

Whether your problem is drying and filtering of liquids, gases or air, McIntire offers long, specialized experience—competent chemists and engineers—laboratory facilities—extensive equipment for development and production. Submit your problems, without obligation.



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Since 1925

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DRYNESS

best reason in the world for using

genetron[®] **SUPER-DRY** **REFRIGERANTS**

"Genetron" Refrigerants are the ultimate in dryness. In "Genetron" 12, for example, there is less than one-thousandth of one percent of moisture! And the tight specifications for "Genetrons" are consistently *bettered* in production. That's why smart service engineers everywhere are insisting on Super-Dry "Genetrons."

Service? No matter where you are there's a "Genetron" wholesaler as near as your telephone. Make your next order—"Genetron."

QUICK FACTS on GENETRON Super-Dry Refrigerants

- Guaranteed exceptionally low moisture content.
- Noncorrosive to standard equipment materials, nontoxic, nonflammable, stable, safe.
- Critical and freezing points well outside range of operating uses.
- Solvent action on oil helps prevent solidification or congealing of lubricant; aids in lubrication of equipment; generally miscible with oil.
- Freely interchangeable and may be mixed in any proportions with comparable fluorinated

hydrocarbons meeting the same strict refrigerant specifications.

- Available everywhere, from refrigeration wholesalers throughout the country.

GENETRON 11 ORANGE LABEL CCl_3F
Trichloromonofluoromethane

GENETRON 12 WHITE LABEL CCl_2F_2
Dichlorodifluoromethane

GENETRON 22 GREEN LABEL CHClF_2
Monochlorodifluoromethane

GENETRON 113 PURPLE LABEL $\text{C}_2\text{Cl}_3\text{F}_3$
Trichlorotrifluoroethane

GENETRON 114a BLUE LABEL $\text{C}_2\text{Cl}_2\text{F}_4$
Dichlorotetrafluoroethane



GENERAL CHEMICAL DIVISION

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SCOTSMAN —

THE ROYAL LINE FOR FIFTY-NINE



Circle No. 23 on Reader Service Card

REFRIGERATION & AIR-CONDITIONING



FOOD SERVICE



TAVERNS AND
LIQUOR STORES



FOUNTAINS AND
DRIVE-INS

PROFIT

King

IN EVERY ICE MACHINE MARKET!



HOSPITALS AND
INSTITUTIONS



HOTELS AND MOTELS



INDOOR AND OUTDOOR THEATRES



SERVICE STATIONS

Plus ...

**SCHOOLS
SUPERMARKETS
CAFETERIAS
CLUBS
and many other
ice users!**

WEAR THE GOLDEN PROFIT CROWN by selling Scotsman Ice Machines! This year make *king size sales* by selling the world's largest line . . . there are more than 50 money-making Scotsman models! You make easier sales with Scotsman too because Scotsman is advertised, promoted and sold in every ice machine market! And remember: You're backed by the leading company of ice specialists whose *sole business is making quality ice machines!* Become a profit king in '59 with Scotsman—send coupon today for complete details on a Scotsman franchise!

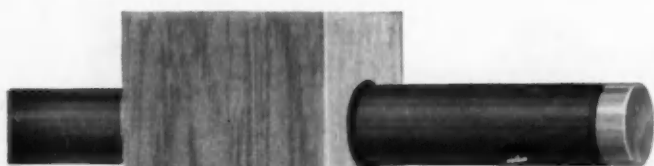
● Send me complete information about a dealer franchise for Scotsman Ice Machines

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CITY _____ ZONE _____ STATE _____

Mail to: SCOTSMAN, Queen Products Division • King-Seeley Corporation
191 Front Street • Albert Lea, Minnesota



A SEAL*

**NO LARGER THAN THE
TUBE ITSELF**

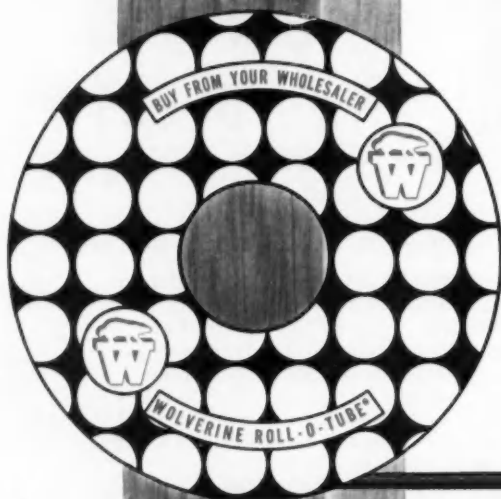


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WOLVERINE ROLL-O-TUBE®**

*Easy to insert through
partitions—keeps tube
clean and dry.



**ASK FOR WOLVERINE ROLL-O-TUBE
BY NAME AND BUY FROM YOUR
WHOLESALER**

*See Wolverine's Exhibit at the 14th International
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CALUMET & HECLA, INC.
CALUMET DIVISION
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CALUMET & HECLA, INC.
17228 Southfield Road
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Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

**PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA.
SALES OFFICES IN PRINCIPAL CITIES.**



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REFRIGERATION & AIR-CONDITIONING

Curtis

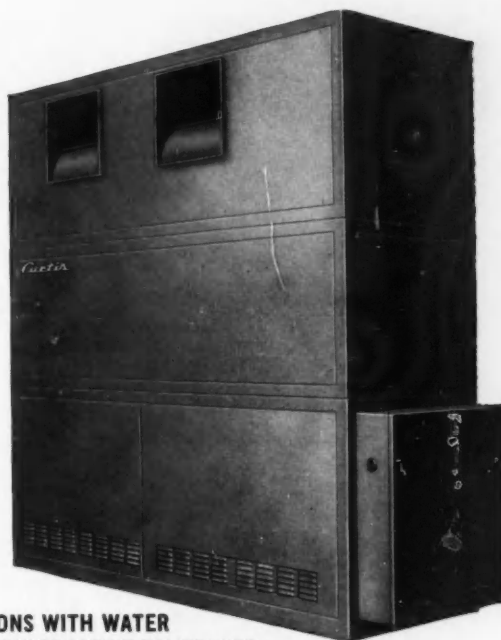
PACKAGED AIR CONDITIONING

INSTALLATION EASIER: Line assembled at the factory—eliminates expensive field labor.

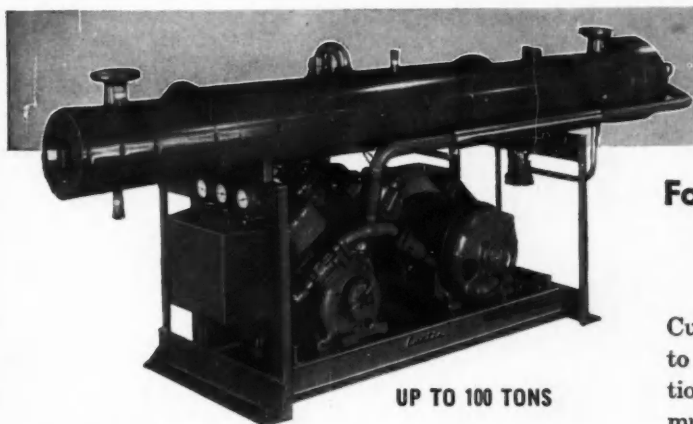
PERFORMANCE KNOWN: Curtis units are run-in at the factory and guaranteed to deliver their rated tonnage. Assures a **BALANCED SYSTEM**.

SUPERIOR EQUIPMENT: Long life, quiet, trouble free, economical operation.

DELIVERY ON TIME: Curtis can meet your delivery requirements, a decided advantage over multiple supplier delivery promises!



UP TO 100 TONS WITH WATER
COOLED OR EVAPORATIVE CONDENSER



UP TO 100 TONS

PACKAGED LIQUID CHILLERS

**For Air Conditioning
Process Cooling
Refrigeration**

Curtis packaged liquid chiller lends itself to a widely diversified field of applications—air conditioning, refrigeration and a multitude of process cooling procedures. Available in capacities up to 100 tons.

REMEMBER, you can count on

Curtis

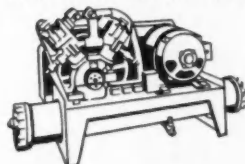
OUR 104TH YEAR

MANUFACTURING COMPANY • REFRIGERATION DIVISION

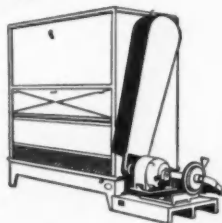
1980 Kienlen Ave., St. Louis 20, Mo.



Air Cooled Air Conditioning Units,
3-5-7½ tons. Residential and
commercial application.



Condensing Units
up to 100 tons.



Cooling towers and evaporating
condensers, air handling units
to match.

VISIT BOOTH 802

Heating & Air Conditioning
Exposition
PHILADELPHIA
Jan. 26-29, 1959

See our newly designed
packaged air conditioners
and liquid chillers

Letters

More Readers Speak Out on 5-Year Warranty Problem

EDITOR:

I have read with a great deal of interest your expression in the September issue relative to the 5-year warranty, and I have read in the November issue the comments that

you have received on this subject from various parts of the country.

Since the 5-year warranty was created I have continually and bitterly expressed my opposition to it in view of the fact that it is detrimental to dealers, and very much more so to us as wholesalers. I feel that those manufacturers who still insist upon it are weak indeed.

How can a condensing unit be compared to an automobile. The condensing unit costs the dealer roughly \$100 with a 5-year warranty, which is badly abused; the \$7500 automobile carries a 90-day war-

ranty, which no one seems to object to. Surely there is no comparison.

I wish to compliment you for your courage in tackling such an issue. It takes some force like your good publication to get the ball rolling, and I do hope you will keep up the good work.

RUSSELL D. JONES
Resco, Inc.
Harrisburg, Pa.

* * *

EDITOR:

I have just completed reading your article on the 5-year warranty on air conditioning. As residential heating and cooling contractors we are very, very much against the 5-year warranty program.

The article in your publication so well describes the conditions that it is almost unnecessary for us to go any further. However, I would like to state that the 5-year warranty policy has caused us to get out of the service business of air conditioning 100% and to subcontract all of our service work. In some cases we subcontract to the manufacturer's service arrangement; in others we give the business to local service companies.

This has become necessary because we found that we often have satisfied customers recommending our work until they have trouble with their unit. Then, although this trouble may occur in the second, third, fourth or fifth year, they always feel that it should be covered free of charge because of the five year warranty.

Many of these customers know that their warranty does not include this type of service. However, they push the issue with the hopes that we will give in, and often carry their bluff so far that hard feelings occur and we've lost a good booster for our work.

Many others have been contacted by a number of cooling companies before we make the sale, and they are confused as to what the 5-year warranty they have purchased actually covers. Therefore, these people are also upset over paying any charge for the first five years for service.

We have found collections for this type service almost impossible. As a result, we subcontract the first year's service for a flat amount. Then during the following four years, the service firm bills the customer for service as it becomes necessary. We find that this keeps the

Only **Freez-King** has

One Motion Control and Moto-Magic Mix Feed!



LARGE CAPACITY
for
Higher Gallonage
Locations



SIMPLEST TO OPERATE... ONE MOTION

- Starts Beater-Motor • Dispenses Product
- Activates Moto-Magic Feeding Device

A FREEZ-KING DESIGNED WITH YOU IN MIND



No. 110
SPACE
SAVER



No. 110
COUNTER MODEL
SHAKE MIXER



No. 111
3 FEEDING
IN 1 MINUTE



No. 112
SOFT SERVE
COUNTER MODEL



No. 113
SHAKE
SERVE

All models are commercially built for many years of service. Beautiful, stainless steel cabinets. Finest product. Exclusive territories available to select distributors and dealers. Write

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LOOK INSIDE....

SEE HOW YORK BORG-WARNER
CREATIVE PRODUCT ENGINEERING FOR COMFORT
NOW BRINGS YOU THE FOUR
BIG FORWARD STEPS IN
AIR CONDITIONING AND HEATING



LOOK INSIDE

**Some of Today's
Most Modern
Buildings**

see how YORK air

The reason? YORK's p
makes possible a Heat P
than conventional system
20% more economical to

Using only outside air

LOOK INSIDE

**YORK's exclusive compound-compression d
makes Heat Pumps practical even in northe**

- **OPERATES EFFECTIVELY AT SUB-FREEZING TEMPERATURES**
- **FROM 42% TO 67% MORE HEAT FOR THE SAME POWER**
- **ELIMINATES COSTLY, SUPPLEMENTARY STRIP HEATING**

**More YORK Central Station Air-Source Heat Pumps
Been Specified Than Those Of All Other Manufactur**

Air source Heat Pumps out-perform conventional systems!

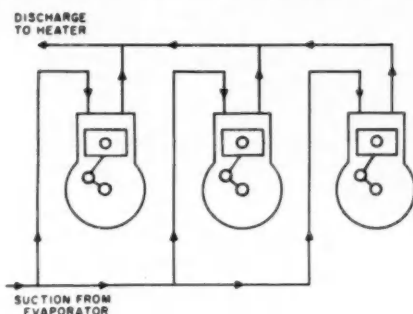
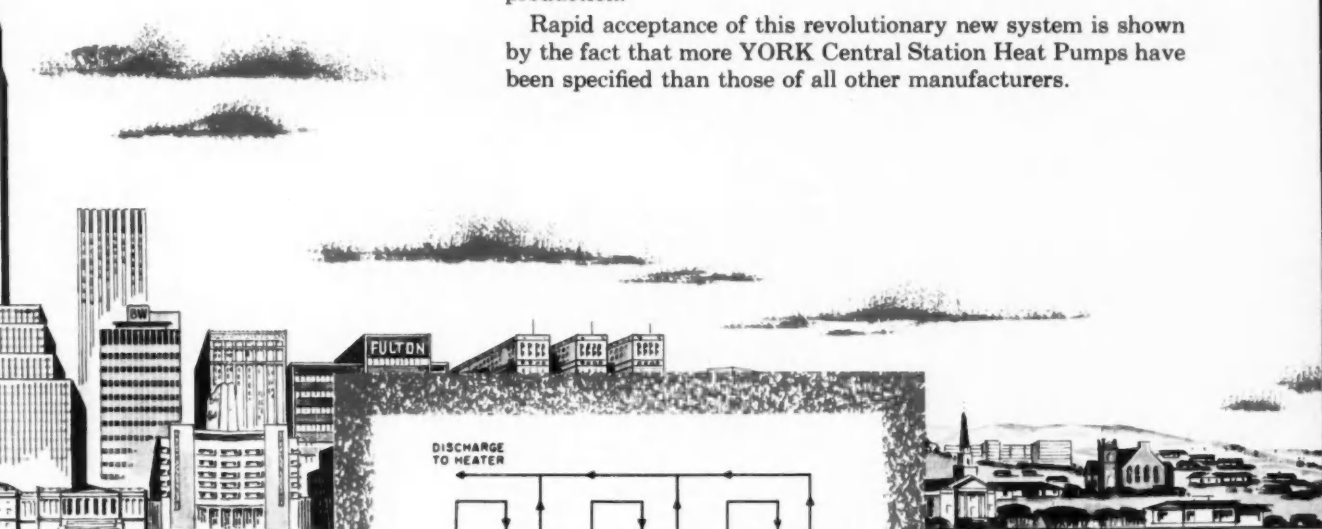
's patented compound-compression design
at Pump that delivers more Btu's per watt
systems. In actual installations, it has proved
al to operate.

e air and incoming power lines (no coal, gas,

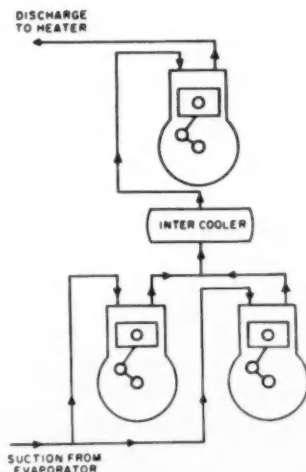
oil or supplementary electric heaters are needed) a YORK Heat Pump maintains year-round comfort conditions in commercial and industrial buildings of all types and sizes—even in areas having winter design temperatures below freezing.

It has all the advantages of separate heating and cooling systems without the disadvantage of costly seasonal shutdowns and start-ups. Space normally provided for boiler rooms, fuel storage facilities and chimneys can be utilized for business profit production.

Rapid acceptance of this revolutionary new system is shown by the fact that more YORK Central Station Heat Pumps have been specified than those of all other manufacturers.



In single-stage compression, equal amounts of refrigerant are compressed in each cylinder. This method does not provide sufficient heat when outside air temperatures are below 25 or 35 F. Electric heaters must then be used.



In compound compression, equal amounts of refrigerant are first compressed in two cylinders. Some heat of compression is withdrawn in an intercooler. All the refrigerant is then compressed in the third cylinder to a higher temperature and pressure. This method provides sufficient heat even during subfreezing weather.

**design
hern areas!**

**ps Have
turers!**

LOOK INSIDE
THE MOST ADVANCED
LITHIUM-BROMIDE
ABSORPTION SYSTEM
BACKED BY YORK'S 23 YEARS
OF EXPERIENCE IN
ABSORPTION REFRIGERATION

LOOK INSIDE

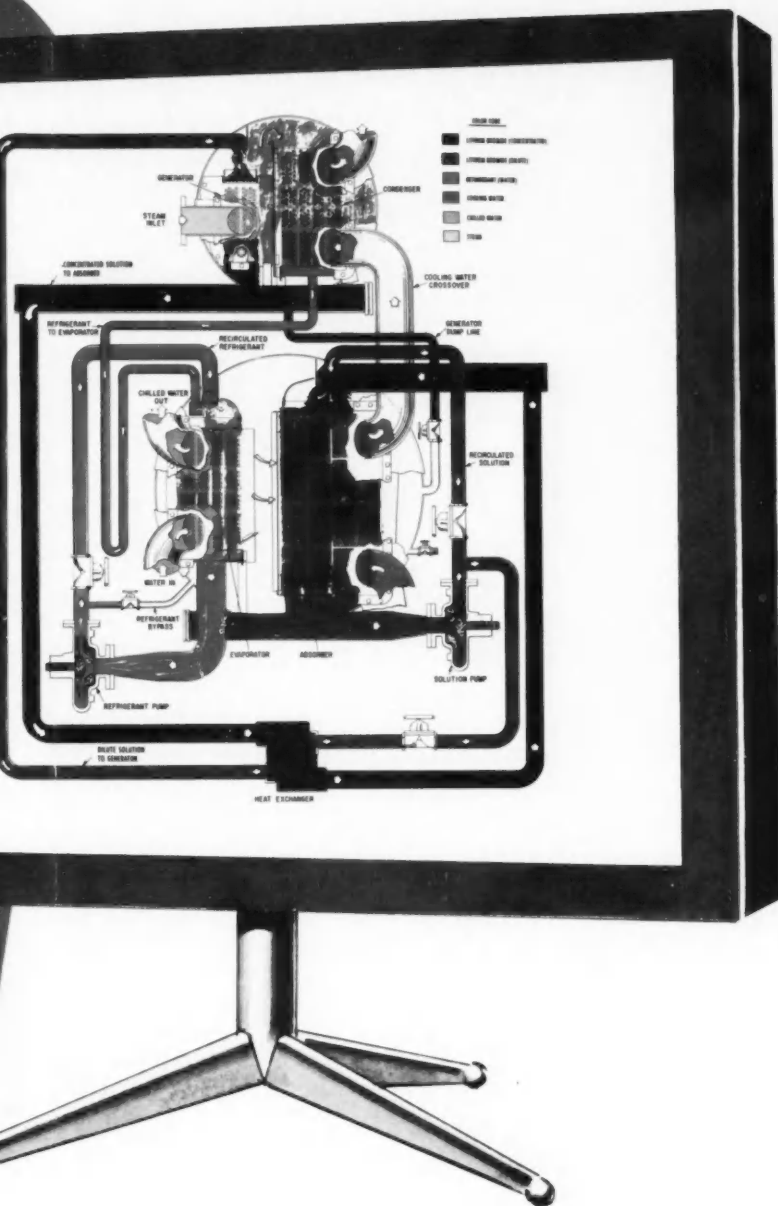
**Revolutionary 3 Pipe Induction System With Instant
Response That Eliminates Zoning of Air and Water**



Here is an induction air conditioning system that is unusually simple to lay out, and yet possesses flexibility never before attained in systems of this kind.

Designed around YORK's new Hi-I induction unit, the 3-pipe system eliminates summer-winter changeover and nighttime shut-down systems of this kind.

Designed around YORK's new Hi-I induction unit, the 3-pipe system eliminates summer-winter changeover and nighttime shut-down



You are looking at the latest development in automatic, heat-operated water cooling systems.

Low-pressure steam or high-temperature water is the activating medium. No motor drive, no expensive starters or heavy electrical conduit needed.

Tap water is the refrigerant, lithium bromide the absorbent. Once the system is charged they need never be replaced.

Savings in operation, installation and maintenance are the most important advantages here over motor-driven refrigeration systems.

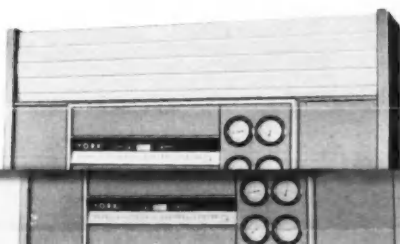
In addition, YORK's perfected method of fluid distribution throughout the system requires less pump horsepower per ton of cooling.

Notice how the lithium bromide solution trickles over the outside surface of the steam-filled generator tube bundle. System responds faster at start-up and can be more closely controlled to meet sudden load changes. There's less noise, too.

Wherever low-pressure steam or high-temperature water is available—in office buildings, hotels, hospitals and industrial plants—there's a place for a YORK Lithium-Bromide Absorption System. Available in capacities ranging from 100 to 740 tons.

LOOK INSIDE

The First Completely Packaged Hermetic Centrifugal Water Chilling System



You'll see a factory engineered-and-packaged centrifugal water chilling system, complete in every sense of the word. It's the YORK single-stage TURBOPAK, and it's hermetic. Lighter and 50% smaller than any other word. It's the YORK single-stage TURBOPAK, and it's hermetic. Lighter and 50% smaller than any

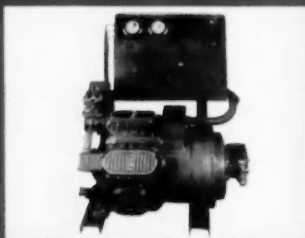
systems of this kind.

Designed around YORK's new Hi-I induction unit, the 3-pipe system eliminates summer-winter changeover and nighttime shut-down, and offers dramatic savings in power and steam costs.

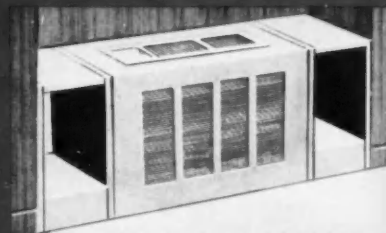
No zoning of ventilating air or supply water is required. Constant quantities are delivered uninterruptedly to all points. Room temperatures are completely and automatically controlled at individual room units.

Automatic unit control valve provides room occupants with 50% greater personal comfort control the year 'round.

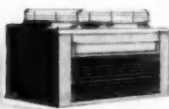
Plus!



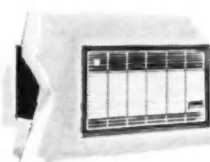
Hermetic Compressor unit, combines a proven YORK V/W compressor and a refrigerant-cooled motor, with an attractive, fully wired, totally enclosed control center. No belts, couplings or shaft seals. Requires less than seven square feet, in 10- to 45-ton nominal capacities.



LOOK INSIDE York Packaged Products For Answers to Your Special Problems:



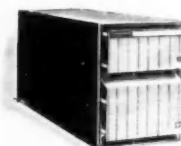
York Champion Air Conditioners for commercial use are air cooled...use no water...deliver 10 to 15 tons of natural cooling. Have step-start, step-capacity control.



York Room Air Heat Pumps cool in summer, heat in winter. Three compact, stylish window units: (1) Citation, 230 V. (2) Medalist, 115 V, 7½ Amp., (3) Metropolitan, 230 V.



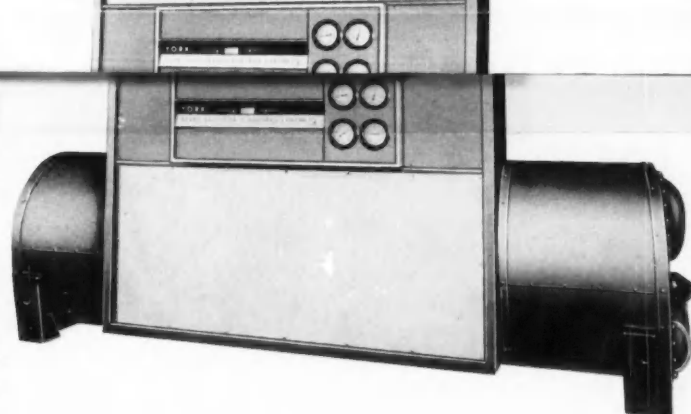
York Residential Heat Pumps cool in the summer, heat in the winter—using only outside air and electricity. Have twin cooling systems, twin auxiliary heaters.



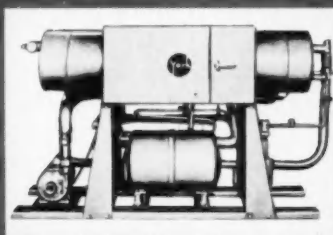
York Furnaces have exclusive Silver "V" Burners that provide more heat more economically. Fully A.G.A. approved for use with natural mixed propane or manufactured gas.

the word. It's the YORK single-stage TURBOPAK, and it's hermetic.

Lighter and 50% smaller than any other comparable system, too. The secret lies in the built-in world-famous Borg-Warner transmission gear. There's a fully wired, electronic control center for precise, automatic capacity control. One piece, rigid base construction simplifies layout, eliminates field assembly.

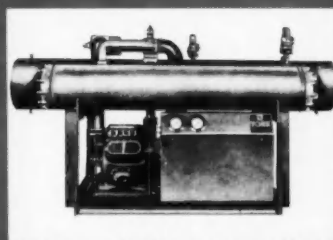


Hi-I Induction Unit, featuring YORK patented primary air nozzles for quiet operation, meets air conditioning requirements for high secondary-coil capacities. Attractive factory-fabricated enclosures for that "built-in" look are also available.



HYDRALINE Packaged liquid chiller, features YORK "sealed-in-steel" hermetic compressor, fully insulated water chiller, water cooled condenser, chilled fluid pump, piping and wiring, and refrigerant and oil charge. Nominal capacities 7½ to 15 tons.

Fan-coil Air Conditioners are available in 20 floor-, wall-, and ceiling-mounted models—the widest selection offered. Units have Underwriters' Laboratory Approval and feature permanent, low-current drawing, split-capacitor fan motors.



YORK V/W packaged water chiller, the smallest of its kind, comes complete with interconnecting piping, automatic controls, wiring and insulation. Flooded-type cooler and positive refrigerant-feed control assures maximum efficiencies. Available in capacities from 18 to 250 tons.



Certified Maintenance

For system performance without maintenance worries, a YORK Certified Maintenance Contract is what you're looking for. Gives you complete maintenance, regular inspections, emergency service when required, all parts and repairs, spring and fall changeover, and start-up and shut-down. All for a nominal, agreed-on-in-advance fee.



LOOK INSIDE

**ALL THAT'S NEW IN
AIR CONDITIONING
AND HEATING**

**Visit YORK Booth 150-250-350-450 at the International
Heating and Air Conditioning Exposition
Philadelphia Convention Hall
January 26-29**

YORK

YORK CORP. SUBSIDIARY OF BORG-WARNER CORP.



**BORG-WARNER
RESEARCH & ENGINEERING
MAKE IT BETTER**

Air Conditioning, Heating, Refrigeration and Ice Equipment • Products for Home, Commercial and Industrial Installations

customer from getting mad at us if service trouble breaks out.

I hope your articles will wake up the industry at the manufacturer's level so that the 5-year warranty can be discontinued. In my opinion a 1-year warranty would be the maximum necessary. I feel that air conditioning for the home is in the demand stage and that the sale of the equipment will not suffer if it is covered only by a 1-year warranty.

D. W. LASATER
Lasater Heating &
Air Conditioning Corp.
University City, Mo.

Electronic Cleaners Alone Won't Control Smog

EDITOR:

I wish to comment on the article, "Electronic Air Cleaners," first by way of complimenting the author, since I think the article is very well written, and secondly to be critical of the point which indicates that air pollution can be controlled by the use of electronic filters.

In the territory around Los Angeles and other major cities where smog is a problem, it is only partially true that air pollution can be controlled by electronic air filters.

Most of the damaging elements in polluted air (smog) are gaseous in character. Electronic filters have no effect on these elements. As a matter of fact, in a minor way there is a negative effect in that electronic air filters do produce some ozone, and ozone is one of the major smog elements.

About the only way that real air pollution control can be obtained in industrial areas or in areas where there are large amounts of automobiles is to use a combination of electrostatic air filtration and activated charcoal, though a combination of absolute type filters and activated charcoal will do a satisfactory job.

I was anxious to write you concerning this since we have had a considerable number of unsuccessful electronic air filter installations in this area. In these cases the purchaser was under the impression that all smog would be removed from the air stream and yet, though the air was clear of visible particles, the eye irritation still continued. It seems to me that it would be in error to let the impression get out to the general public that the only answer to air pollution control is the use of electronic air cleaners.

ARTHUR J. HESS
Los Angeles, Calif.

TRUCO® DOES IT AGAIN! BIG SAVINGS in tile installation

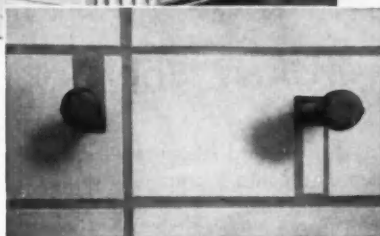


Drilling accurate holes for plumbing in glazed structural tile averages less than 3 minutes per hole with Truco diamond drilling equipment.

Finished holes are neat, clean, accurate, and need no patching.



Old method involved sawing slots in tile which required patching, and left unsightly wall scars.



JOB: Cutting 3500 holes 1", 1½", 2" and 2½" dia. through structural glazed and facing tile to admit plumbing pipes in walls of kitchens and washrooms in Ford Motor Company's Staff and Product Engineering Buildings, Dearborn, Michigan.

CONTRACTOR: Smith Fireproofing Company, Detroit.

TOOLS: Truco Hand Swivel Drill Motor, a heavy duty unit operating at 1000 rpm with integral Truco Water Swivel and Truco Drill Stand mounted on a wheeled platform, readily movable to each work site.

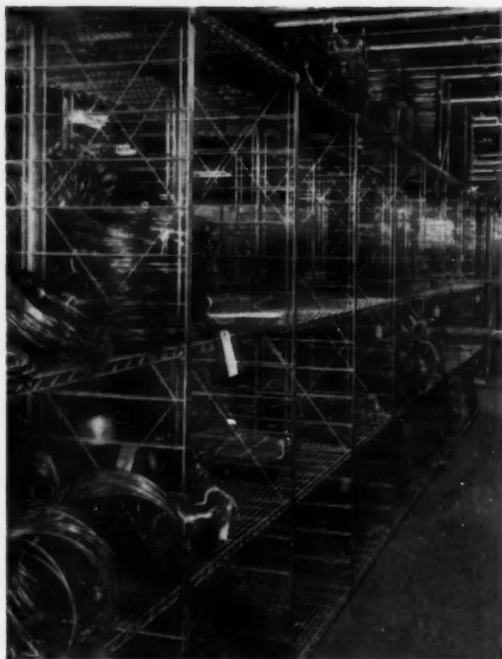
OPERATION: The previous method required a sawing operation in a separate room to which tile was carried at considerable cost in man-hours. Much chippage, scrap, waste and dirt resulted. Pieces of tile had to be patched in around pipes, taking more time and leaving an unsightly job. With Truco equipment right at the work site, tile was placed on a board, holes drilled in less than three minutes per hole, and the tile laid up in the wall. Holes were accurate, fitted neatly, and there was no unsightly patching, no chippage, practically no scrap or litter. Truco equipment delivered a perfect job at a fraction of previous cost. Write for your distributor's name.

Visit Booth 734 — 14th International Heating and Air Conditioning Exposition

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WHEEL TRUEING TOOL COMPANY

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ERECTA-SHELF — perfect for food storage in walk-in coolers. Non-rust units can be hosed down for effective cleaning. Adjustable shelves save space.

ERECTA-SHELF — serves well for heavy duty storage. It's strong, lightweight and fully adjustable. One man can erect a 5 shelf unit in 10 minutes. Metal Clips lock units together.

OPEN **New** PATHS OF Profit WITH ERECTA SHELF...

Newest, Sturdiest Shelving ON WHEELS OR OFF

ERECTA SHELF answers an ever-present need for more space within existing area. Better organized storage means more efficient operation along the line.

Designed primarily for cooler and backroom storage, ERECTA SHELF is the durable, all-metal shelving of a 1000 uses. *Each of these uses is your avenue to revenue.*

ERECTA SHELF IS EASY TO SELL

- *Goes Up in Minutes*—needs no nuts or bolts; can be quickly dismantled and rearranged to suit.
- *Unparalleled Strength*—each shelf will support up to 1000 pounds!
- *Rugged Steel Rod Construction* — plus corrugated steel bracing give these shelves their superior strength.
- *Carefree Maintenance*—unaffected by heat or cold; can be hosed down for easy sanitation. Heavily plated or stainless steel.
- *Designed for Flexibility*—shelves are adjustable at 5-inch intervals, accommodate items in all sizes, weights and shapes.
- *Economical ERECTA SHELF*—is priced way under any shelf that will do a similar job.

YOUR PROSPECT WANTS ERECTA SHELF FOR

Equipment Storage — everything from food cartons to compressors.

Walk-In Cooler Storage — all perishables from meats to milk.

Staple Storage — from the smallest to the tallest, from a half-ounce to a half-ton.

and more

Versatile ERECTA SHELF, now also available **on wheels**, is more adaptable, more useable than ever! Write today for facts and figures on ERECTA SHELF — your map to new paths of profit.

ERECTA SHELF.

Sani-Stack

quality products of

METROPOLITAN WIRE GOODS CORP.

N. WASHINGTON ST. and GEORGE AVENUE
WILKES-BARRE, PA.

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REFRIGERATION & AIR-CONDITIONING

America's Best Buy in a Power Hack Saw!

First on the market
First in performance
First with professional
workmen everywhere

**MOST POWER
PER DOLLAR**

Milwaukee
PROFESSIONAL POWER TOOLS

Plus

The complete line of 39 of the
"cuttingest" blades you ever "saw"...
including the famous

Sawzall Deluxe

SAWZALL

De Luxe Blade

Remember, only genuine "SAWZALL" DeLuxe
Blades cut twice as fast...last 10 times longer.

SAWZALL

There's only one Sawzall! Thousands of workmen have proved that
over many years...by their preference have made Sawzall America's
No. 1 power hacksaw...your best buy when you want:

- the utmost in heavy duty cutting power
- professional fine-tool quality
- all-day handling ease, comfort and safety (one-hand operation.
Won't overheat or overload)
- freedom from costly maintenance
- lasting satisfaction (heavy duty built throughout. Full
ball and roller bearings. Milwaukee high-torque motor).

Ask your Milwaukee distributor for a demonstration or write:

Milwaukee Electric Tool Corporation

5310 W. State Street • Milwaukee 8, Wis.



Find it Fast
Look in the Yellow Pages
Under: "Tools - Electric"

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NOW...A SIMPLIFIED LINE of refrigeration controls!

Your inventory is simplified...yet, you get the capacity and versatility to satisfy all refrigeration requirements. Penn single pole models are rated to 16 Amps., 115 V., 10 Amps., 230 V. single phase...two pole models, rated 24 Amps., 115 or 230 V. single phase.

And, you get real economy. The two pole heavy duty controls handle polyphase motors without use of magnetic starters (where protection against overload and single phasing is provided). With their two separate circuits, these models are really 2 switches in 1. Don't settle for less...

Ask your wholesaler!



Series 270 single pole and Series 1272 two pole single function for either low or high pressure. Also temperature models.

Series 271 single pole and Series 1273 two pole dual function. Temperature models also available.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES
Circle No. 31 on Reader Service Card

LET'S TALK

Business

Let's Make This Good Business Better!

IF you're reading this column, chances are 100-to-1 that you're in the refrigeration and air-conditioning business.

Why are you?

Is it because this is the only thing you know and the only thing you can do?

No!

It's probably because somewhere along the line someone told you that this was a good business, and you had enough faith in that person to follow his lead. Are you happy? Are you successful?

You're darn right you are! In your own mind and in your own heart you are a success. Perhaps you haven't yet made all the money you'd like to make or attained the position you want to hold, but still you know that the business offers you the opportunity of meeting your goals.

I'm sick and tired of hearing how lousy our business is. I'm tired of hearing how lousy we are as salesmen. Perfect we are not — but so bad we are not, either.

There is room for improvement always, and in our day there will be improvement. We must recognize our weaknesses and turn them into our strength.

In this month's featured article we make it plain that we are failing to stimulate new blood into entering our business. We do not do the things we must to surround ourselves with ambitious and intelligent young men. We fail to offer enough reasons why this is a good business — why a young man can be successful in refrigeration and air-conditioning.

Let's remember the person who lead us into this field. Let's remember that we are successful, because we fill a definite need of our country and the people in it. Let's all take time to encourage the youth of today to enter our business.

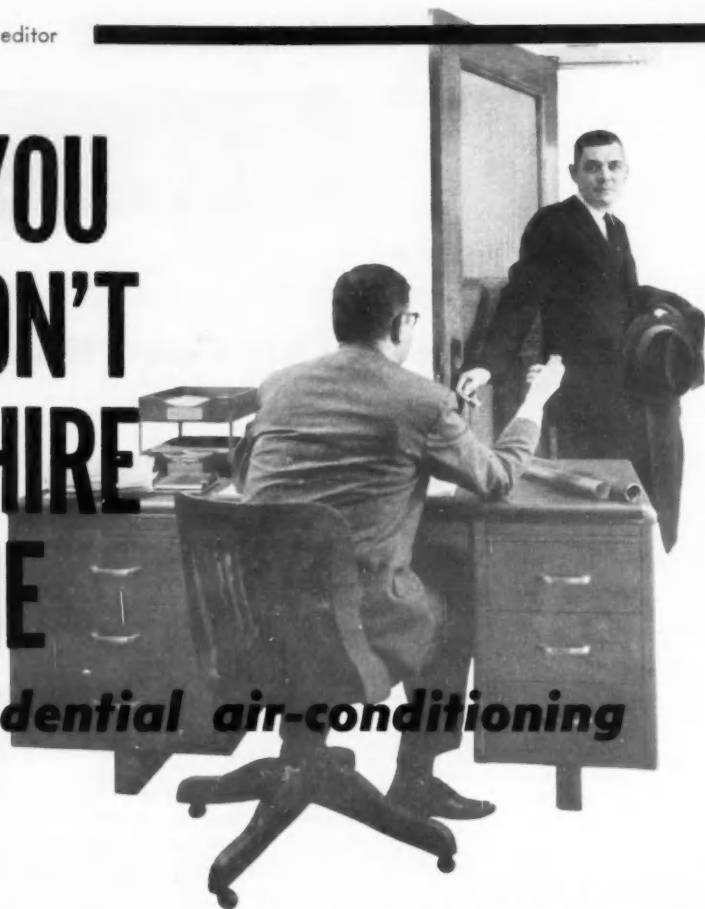
Is it such a poor business that we cannot take pride in saying, "It's been good to me and it can be good to you. Join me in making it even better!"

Good luck and good selling.

Thom Muir

YOU COULDN'T HIRE ME

to sell residential air-conditioning



***T**O paraphrase an old ballad, "A good salesman these days is hard to find."*

Why are so many residential air-conditioning dealers today crying this blues refrain? As the merchandising magazine of the industry we knew that the answer to this question would be extremely significant to any of our readers who make all or part of their living from this business.

Some of us had our own personal opinions as to how this question could be answered, but opinions wouldn't do. We wanted facts. And we felt there was only one real way to get them.

So we sent one of our associate editors out to hunt for a job. We told him to contact residential air-conditioning dealers in five major cities. But we didn't tell him which dealers, or even how to find them. We gave him no preconceived ideas of what we thought he might find.

We simply told him to handle himself just as if he were really looking for a job — and then to make detailed notes of each job interview he was able to line up.

What follows is the first-hand report of his experiences.

Jim McCallum

editor

I'VE SPENT THE LAST FEW MONTHS hunting for a job — a job selling residential air-conditioning for some dealer looking for a young man full of enthusiasm, eager to learn, and willing to start out with a modest income.

But after personal interviews with 25 dealers in Detroit, Pittsburgh, Philadelphia, Chicago and St. Louis, and telephone conversations with dozens more, I am convinced that the residential air-conditioning business at the retail level is not for me. In fact, if you're the average dealer, *you couldn't hire me* to sell residential air-conditioning.

Not that dealers aren't looking for salesmen. Quite the contrary. For, out of the 25 dealers I talked to, 18 either offered to let me go to work for them or said they would give me serious consideration.

But only one dealer — I repeat, only ONE — out of this entire group gave me any real incentive for entering the residential field as a salesman.

Only two made any serious attempt to sell me on what their companies had to offer.

And of the 18 who offered to hire me, or at least consider me, 14 did so without probing at all into my background or qualifications.

I went to these cities full of genuine enthusiasm for the residential market. I presented myself as a young man earning a substantial salary in another type of job, but interested in learning to sell residential air-conditioning — so interested that I was willing to decrease my earnings to \$100 a week while being trained.

Here is my personal background that I outlined to each dealer: I am 30 years old, and once worked in the sales promotion department of an air-conditioning manufacturer for five years. For the past two years I have been with a small advertising agency. Now I want to move to *your* city because it's my wife's home.

These facts about my background (with the exception of the reason for the move) are true. The only thing I didn't mention was that for the past year I have been an associate editor of REFRIGERATION & AIR-CONDITIONING BUSINESS.

Here's How I Hunted for a Job

In each city I used the yellow pages of the telephone directory as a guide in seeking out those dealers who might be interested in hiring me as a salesman. I called only those dealers who advertised residential air-conditioning.

What did I expect of a dealer? Just that he meet me halfway in changing from a salaried office job to one of straight residential sales. I wanted some training that would give me the background I needed to do a good job of selling. I felt that I could expect a moderate income during this training program. And finally, I wanted to work for a dealer who shared my enthusiasm for the residential market, and had a good reputation in his community.

I was aware that this had been a bad year for residential air-conditioning, so I felt I was talking to the dealers at the best possible time — a time when they would all be looking for enthusiastic salesmen, trained or untrained. I couldn't have been more wrong.

In fact, three dealers tried to convince me that residential air-conditioning is so tough that I should look for a job in another industry. Two even offered me the names of companies in other fields where they knew openings existed.

Only two dealers offered me a training program worthy of the name.

Three dealers wanted to be certain that I had a cash reserve that would enable me to get along without any pay until I learned the business. But they didn't say how I could learn it.

Not one dealer told me exactly how I would be paid. Some *implied* a drawing account against commission. Others told me it would be straight commission. And some didn't bother mentioning it at all. Some dealers said the commission would be *about* 10%. Others said it would be *about* 50% of the net profit of a job.

What Dealers Didn't Tell Me

Many of the same dealers who wanted to be sure I could live without pay during training treated me as some kind of a thief. They spent most of the interview complaining about being robbed by draw artists. This embarrassed me because I felt that I was being accused of being one.

Only four dealers asked me to complete an application form. Of these only one seemed genuinely interested in my background. I purposely did not offer any information about myself until I was asked.

Once I made it clear that I needed training, my past seemed unimportant to them. Since most of them were not going to risk anything they apparently did not feel that my experience was of any consequence. But it seemed strange to me that they would risk their reputation by letting me represent them when they didn't know anything about me.

Not one dealer bothered to ask whether I owned an automobile. Not one offered to share the expense of using my car in making sales calls. One dealer said that he someday hopes to provide his salesmen with cars, but he didn't say when that would be, or what he intends to do in the meantime.

Not one dealer mentioned his company's vacation policies or offered any fringe benefits which might make me want to work for him rather than his competitor.

Only two dealers made any effort to sell me on the reputation, background or size of their company. And only one of these bothered to tell me the firm's reasons for handling a particular line of equipment, and what that line would mean to a residential salesman. This same dealer is the only one who matched my enthusiasm for the residential field.

Would you hire me to sell residential air-conditioning? You *couldn't* hire me. I'll work in a field where my employer has the same enthusiasm as I do, and in a field where he will tell me that if I do a good job it is possible to make a good living. In residential air-conditioning there are plenty of openings, but very few jobs.

For a call-by-call report turn the page ►

Continued from preceding page

This is why I became discouraged . . .

DID THE DEALER . . .

... sell the merits of the residential air-conditioning business?
... try to sell the reputation of his company?
... try to sell the advantages of the equipment he handled?
... show me his place of business?
... offer any training?
... offer specific compensation?
... discuss fringe benefits (vacation, etc.)?
... use a job application form?
... ask if I owned a car or offered to share its expense?
... offer me a job, definitely or tentatively?

HERE ARE REPORTS OF TYPICAL JOB INTERVIEWS . . .

DETROIT

When I arrived at this shop a young man was sitting in the office flipping a knife over in his hands. When I told him I had an appointment he said that the sales manager should be in soon.

After a brief conversation I mentioned to this young man that I was looking for a job. He asked me if I played a musical instrument. He said that everyone in the shop played a musical instrument, and that they have a jam session nearly every day.

I asked him how business had been this year and he replied that the commercial business had been good. He then gave me the names and addresses of two supermarkets on which the company was quoting.

When the sales manager finally came in I introduced myself. We stood in the middle of the office while the young man sat and listened to the entire interview. The sales manager didn't ask about my background or experience. He simply assumed that I was ready to go to work.

He said that they would pay me up to 10% commission. I asked him to clarify that, and he said that if I sold a \$1700 job for \$1200 I wouldn't get 10%.

I told him that I would need training before I could make any sales. He gave me a booklet published by a manufacturer and said that it should give me all the answers. The booklet told how to hire salesmen.

I told him that I was not from Detroit and it would be expensive to move my family. Because of this I wanted to be certain that the job was with a good dealer. He replied that they were only interested in making sales, the rest was up to me.

PITTSBURGH

After I had completed a job application form I was sent upstairs to the sales manager's office. The sales manager offered me a chair opposite his desk.

It was a double office, and as soon as the subject of employment was mentioned the other man in the office stopped writing and leaned back to listen. He didn't introduce himself, but he continually horned in on our conversation.

The sales manager said that they would be more interested in having me sell new kitchens than residential air-conditioning. Both of the men gave me an extensive lecture on why residential air-conditioning was not being sold in the Pittsburgh area.

The sales manager finally suggested that I might be able to get a job with their advertising agency. I thanked him but said that I was interested only in getting into air-conditioning sales. He ignored this and gave me the address of the advertising agency, telling me again that he thought there might be an opening there.

PHILADELPHIA

The sales manager asked about my background, but did not bother to write it down. He explained that they had done pretty well in residential air-conditioning but that it was a tough field, particularly for a novice.

I asked him if he could offer any sort of training, and he asked what kind of training I was talking about. He said that either I could sell or I couldn't.

DETROIT						PITTSBURGH					PHILADELPHIA					CHICAGO					ST. LOUIS			
DEALER						DEALER					DEALER					DEALER					DEALER			
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YES	NO	NO	YES	YES	NO	YES	NO	YES	YES	NO	YES	YES	YES	NO	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES

He explained that the company was divided in two parts. As near as I could tell one section was selling to distributors and dealers, the other was selling directly to the user. I asked him if this was customary, and if it hurt them at all, but he didn't bother to answer.

He said that they were looking for a salesman that they could put on sometime in December and asked that I get in touch with him then.

I told him that I was interested but I knew that I lacked the skill to sell and would have to be trained. He assured me that I wouldn't need any training. He made this statement knowing that I had never sold a nickle's worth of equipment.

CHICAGO

The man I was to see wasn't in when I arrived, but another fellow gave me an application form to fill in while I was waiting. When the first man came in he introduced himself but didn't tell me his title or position. He looked over my job application and asked me some questions about my background.

The most disturbing aspect of this interview was that a young man with a job application form sat across from the desk listening to our conversation.

After discouraging me from entering the residential field the interviewer introduced me to another man, but did not give me his title.

This second interviewer asked if I would be interested in selling new kitchens and bathrooms as well as air-conditioners. I told him that I was primarily interested in air-conditioners, and he replied that I couldn't make a living in that field alone.

He implied that he was looking for a sales manager

rather than a salesman. But he did not mention how he expected to compensate for the job.

He suggested that I get a job in some other field until I became situated in Chicago, and then work for him part-time until I learned the business. I felt that he wanted me to learn the residential air-conditioning business, and then teach it to him.

On the application, under salary expected, I had indicated commission. He said that it couldn't be straight commission, but didn't say what it could be.

ST. LOUIS

The owner offered me a chair next to his desk and asked me to fill him in on my background and experience. When I finished he said he was interested in hiring two salesmen. He had already made a deal with one man who expected to start in about two weeks. This man couldn't start sooner because he was not in a financial position to get along without pay for about a month.

The dealer asked me if I was in that position. I told him I wasn't. Then he asked how I expected to live when I first started selling. I told him that I had hoped to obtain a drawing account against commission. He told me very flatly that he would not pay anyone a draw. He explained that he did it once before and that it cost him a good deal of money.

He said that if I worked for him he would pay me a commission of 50% of the net profit of the job. In explaining the net profit, the commission varied from 40 to 60%, so I had no idea what the commission actually would be.

He was very interested in my sales promotion background and said that he would probably want to use

me in helping him set up advertising programs. The job he outlined sounded like a combination office manager, advertising manager, and salesman. But the salesman was the only one that would be paid. And a large part of my productive time would be spent helping to run the office and preparing advertising.

Before I left he told me an amusing little story about how he had insulted one customer who had called in with a complaint.

... and now the silver lining

The job interviews reported so far are typical of the sorry experiences I encountered. Looking back on them, it seems easy to understand why many residential air-conditioning dealers are finding it difficult to get the kind of salesmen who can really move their product. Sales hiring practices like these are hardly calculated to attract such men.

In all this bleak picture, however, there was one bright spot. In Philadelphia I was interviewed by the one dealer out of the 25 I talked to who viewed the residential market with something more than passive acceptance. He really shared my enthusiasm for the business, and assured me that I could make an excellent living after I had been trained properly. He promised to see to it that I received this training.

When I talked to the sales manager to arrange an interview he told me he was going to be in the downtown area, and offered to meet me at my hotel. During this interview the sales manager gave me a complete history of the company, frankly stating the problems which they have had and how they solved them. He explained their present position in residential air-conditioning and their plans for the future.

He also gave me a summary of his personal background and his reasons for being with the company.

He asked me about my background and experience,

and promptly recognized that I would need training. He said that the best way to train me would be for him to make calls with me. He said the only formal training he could offer would be to enroll me in a sales training course offered by a local air-conditioning association.

He asked me how much money I would need and I told him. He did not say how much they would pay, but said that they would pay me a drawing account, at least at the beginning. During the interview he filled in an application form listing the highlights of my background and experience.

He thought enough of this interview to bring along literature which covered the line of equipment that the company handled. He explained its features and why they had decided to handle it. He explained which models they had chosen, and what they could mean to a residential salesman.

The following afternoon I went to this firm's place of business and met the president of the company. We talked in his office covering many of the same points I had gone over with the sales manager the preceding day. He showed me through the shop and display area.

He made it very clear that while they were giving me serious consideration they would have to make certain I would fit into their organization. He explained that they had a good crew which got along well together, and they wanted to be careful not to disrupt that situation.

Throughout the interviews with the sales manager and the president I had the impression that I was talking to businessmen capable of evaluating my worth to their company, and able to decide whether or not they could use me. It gave me a feeling of confidence knowing that if they decided to hire me it was only after careful investigation, and it would be a job worth having.

And by the way, here's one dealer who's not crying the blues about either his lack of sales or his lack of good salesmen. Could be there's a reason?



**See you at the
HEATING & AIR-CONDITIONING SHOW**
Philadelphia, Pa. — January 26-29
(for details see pages 76-80)

LOST

space in your building

FOUND

with



KRAMER

OUTDOOR COMPRESSOR

Why lose dollar-making storage and selling space to house compressors, when you can now use the Kramer Outdoor Compressor? The THERMOBANK COMPRESSOR SYSTEM is factory assembled, tested and run-in; it saves installation time and money.

The refrigeration industry again finds Kramer blaz-

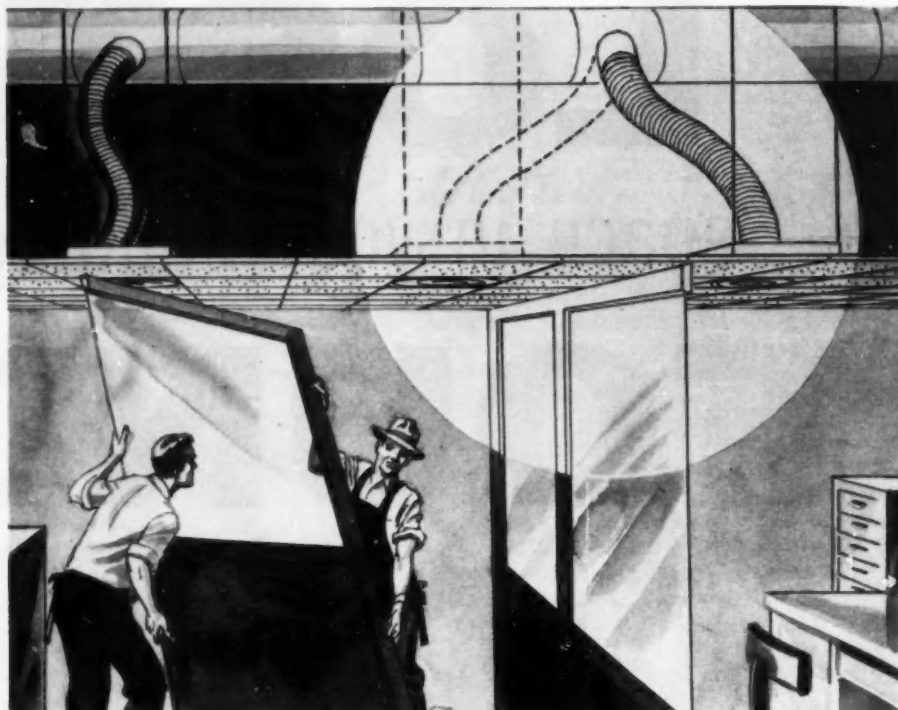
ing a new path with its THERMOBANK SYSTEM—the original and only automatic re-evaporating, non-overloading, fastest hot gas defrost system—now engineered to perform unfailingly, not only in a heated space but in any unheated space or outside at any outdoor temperature.

WRITE FOR BULLETIN TC 406A

KRAMER TRENTON CO. Trenton 5, N.J.

45 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

Circle No. 44 on Reader Service Card



FLEXIBLE AIR DUCT . . .

air-conditioning's answer to the problem of movable partitions

THE GROWING USE of movable partitions for subdividing office or industrial space has greatly simplified the problem of rearranging building interiors to keep them in step with changing requirements. But, in buildings equipped with central air-conditioning using ceiling outlets, moving the partitions often creates a problem of its own by disrupting the distribution pattern of the air-conditioning system.

Many times the existing air outlets aren't in the right locations to properly serve the newly divided areas. Fortunately the use of modular ceilings makes it simple to move the panels containing the air diffusers to just the spots where they are needed.

The one thing that can't be

readily moved, however, is the rigid metal ductwork supplying conditioned air to these outlets. To adapt this ductwork to the new distribution pattern in most cases would require major renovation and would be prohibited by high cost or lack of working space.

So what's the answer? It can be stated in three words: Use flexible connectors.

If flexible duct has been used in the original installation to connect the main or branch ducts to the various outlets, the problem of relocating the outlet panels presents no difficulty at all. The flexibility of the duct makes it possible to move the outlet without disturbing any of the connections. If the outlet has to be moved so far

that the existing flexible connector won't reach, it is only necessary to remove one end and splice on another piece of sufficient length.

If flexible connectors have not been used in the original installation, then the time to install them is the first time that relocating the movable partitions causes an air distribution problem.

In addition to the situation just described, flexible air duct offers many advantages for air-conditioning installations.

For example, while high velocity systems save building materials by reducing duct sizes, they also result in reducing the area between ceiling and floor joists required for their installation. For the contractor faced with the difficulty of

working in these cramped spaces, flexible air duct is ideal. Its light weight and flexibility make it easy to handle in tight spots.

It provides an economical way of running air supply lines around structural members and service lines in the confined areas above hung ceilings, without disturbing any permanent ductwork. Its lightness eliminates any problem of ceiling weight.

Because it is so easy to handle and so quick to install, flexible duct saves money on original installations. These savings are increased each time a revision of the air distribution system becomes necessary.

It is ideal for use wherever extreme bends are required, and even under these severe conditions it will not kink.

Friction loss through this type of duct, while greater than that experienced with straight sheet metal duct, is never enough to require any increase in capacity of the air-conditioning system to which it is applied.

Flexible duct is subject to condensation just as is sheet metal duct, and should be insulated in the same amount and manner as the sheet metal duct to which it is attached.

The flexible duct used in air-conditioning systems is composed of a coated glass fiber fabric supported by a galvanized steel spiral. Being an inorganic material, the fabric is resistant to moisture, vermin, mold or fungi, and will not support combustion. These ducts meet the requirements established by the National Board of Fire Underwriters.

Because of its construction, flexible duct is extremely easy to cut and fit. It can be quickly cut to the desired length with regular sheet metal snips. No special tools are needed.

Splicing two lengths together is simple. Just coat the inside ends of the two pieces with adhesive and join them by slipping these ends over a 6" length of sheet metal coupling. Seal the joint on the outside with more adhesive and then wrap it with tape. That's all there is to it.

Continued on page 105

CO-OP DISPLAY

... a new approach to the merchandising of residential air-conditioning equipment

IMAGINE A BIG AND IMPRESSIVE DISPLAY ROOM, attractively designed, well lighted, prominently identified, and located on one of the most heavily trafficked arteries in the nation's largest metropolitan area.

Imagine this area divided into separate exhibits for the display of most of the major lines of residential air-conditioning equipment.

Imagine it staffed by personnel carefully trained to demonstrate this equipment to visiting homeowners and to intelligently answer any air-conditioning questions they might ask.

Imagine this set-up as having an arbitrary and well policed system for the referral of sales leads on an equitable basis to the participating manufacturers.

Imagine it serving as a training center for dealers and a place where they could bring prospective customers for a visual demonstration of an operating installation.

Further imagine it as a center for the active promotion of residential air-conditioning on an impartial and unprejudiced basis, aimed only at advancing the use of air-conditioning in general, without regard to brand or price.

Imagine all these things and you have a pretty fair idea of the bright new concept of cooperative air-conditioning merchandising currently being developed by Manufacturers' Air Conditioning Institute of America, Inc.

The Institute is a privately owned and organized corporation that will be financed by the contributions of participating manufacturers. It is the brain child of Murray Schwartz, a veteran of air-conditioning selling in the metropolitan New York area.

In the words of its organizers, the purpose of the Institute is "to provide a service to the air-conditioning industry by the dissemination of information, both general and specific, concerning air-conditioning facilities and installations; by arousing public interest in the idea and utility of air-conditioning; and by providing a focal point at which the displays of major air-conditioning manufacturers can be readily viewed by prospective buyers of the equipment."

Here are the details of this imaginative promotional plan:

The Institute building will be erected at Hempstead Ave. and Rockaway Rd. in Hempstead, Long Island, where it will serve one of the largest (and still growing) residential and business communities in America. It will have ample parking facilities.

The building will house a maximum of 15 major exhibitors of air-conditioning equipment, in addition to one exhibit of accessory items such as controls, ducts, and grilles. Each participating manufacturer will be allotted approximately 400 sq.ft. for display purposes.

The Institute will be open 50 weeks a year, six days a week, including two evenings a week until 9:30.

The displays will be manned by an adequate staff of trained personnel at all times. Representatives of manufacturers—but not dealers—may man the exhibit booths at their discretion. The Institute also will distribute exhibitors' literature.

Consumer inquiries and leads will be promptly forwarded to the exhibitors, with appropriate follow-up by the Institute. If a prospect

Continued on page 109

Roger W. Birkman, consulting psychologist, says:



APPLIED PSYCHOLOGY

can help you pick the right salesman

How DO YOU HIRE your salesmen?

Once they're hired, what do you do to keep them selling?

The key to success in hiring, and in getting consistently good performance from the people you employ, lies in paying a lot of attention to a frequently neglected factor — the human personality.

Take hiring. The average employer in search of a salesman usually relies on personal interviews and in some respects does a good job of sizing up applicants.

Suppose a man is found who has the necessary training and experience; who talks well and generally makes a good impression; who scores nicely on aptitude tests, showing a strong desire to sell and to succeed in his assignment.

The salesman is hired; everything points to his chances for success. Yet he fails or works ineffectively. Perhaps eventually he quits or must be fired. The company loses a sizable investment in training. And still doesn't have a salesman.

This happens because the most important single factor in the salesman's success — his personality — is too often left shrouded in mystery.

You, the employer, can easily find out what the salesman *can* do and *likes* to do, but you still won't know how or whether or not he will use his abilities. In short, you don't know what he *will* do with the talents he possesses.

A salesman's high intelligence and all of his skills don't mean a thing when his personality prevents his sticking with his employer and doing his job as well as he should.

We have devised a simple yet highly effective way of probing personality as it relates to success on the job. In addition to aptitude and I.Q. tests, we use a four-page questionnaire containing 240 easily answered true and false questions. The apparent simplicity of this test may be deceiving. Actually the questions are the result of years of research. The test is figuratively

an X-ray device which reveals to the skilled psychologist the farthest corners of a personality.

How does the test work, and of what real use is it to business?

We analyze answers to the questions to find out whether or not the employee or job applicant has a "balanced" personality. Fifteen years of experience, the last six devoted to intensive use of this unique questionnaire, have convinced us that the yardstick for measuring potential success in a job is emotional balance.

No matter what a man's personality traits are, however strong or intense they may be, if they harmonize and blend — if, to a psychologist, the traits seem to be "in balance" — the man probably will be productive and successful.

To the employer this means: you can hire a man with a balanced personality and feel fairly sure he will be a successful employee. If you hire a man whose personality is out of balance, you will need special information on how to handle him if he is to succeed.

To check on the accuracy of his method, we recently went through a file of questionnaires completed by job applicants or employees of various companies over the past five years.

We found that 80% of those rated as balanced personalities were still with their companies, working successfully. This is a remarkable batting average.

A recent survey of the life insurance industry, for instance, showed that only 45% of all agents hired were still with their companies at the end of even one year; only 14% stayed with the companies five years. And insurance companies spend vast sums to find, screen, educate, train and supervise their agents.

A high rate of turnover among salesmen is costly in any industry. One survey of fourteen types of industries came up with the average figure of \$5,429 as the cost of hiring and training a salesman.

When a salesman quits before he sells enough to

pay back this investment, or fails to work successfully, that sizable cost must be written off. Psychology can help business and industry cut down this tremendous expense.

What about the "difficult" salesman, the man you've already hired, who may have real talent for selling but whose wrangling, dissatisfaction, and generally trying personality keep him from producing?

Psychology has an answer for this too.

Take the case of a national concern whose top salesman in the entire country was a restless, unhappy individual, as well known for constant feuding with his superiors as for brilliant selling.

On the strength of his selling record, he was pampered, bargained with, given concessions — to no avail. One day he blustered into an executive's office with the announcement that he had decided to resign and take a job with a rival firm.

The executive happened to have one of our questionnaires on his desk, since at that time the company was considering using our service. On an impulse, the executive picked up the questionnaire and handed it to the salesman.

"Before you go," he said, "how about filling this out?"

Analyzing the star salesman's answers to questions, we found that he badly needed and actually wanted firm, stern handling. The policy of appeasement his employers had been following was exactly wrong.

As soon as he was met with firmness and told in no uncertain terms what the company would and would not stand for, he not only changed his mind about resigning but changed his whole attitude. Today he is still the number one salesman in the country for the same company, and he and his employers are in happy accord.

Our files are full of such dramatic case histories.

In another organization, a valuable salesman seemed suddenly to become fumbling and incompetent after years of outstanding work and intelligent handling of his responsibilities. He made a couple of blunders serious enough to affect the company's business.

The firm's president, who had a great deal of re-

spect and affection for this particular man, was deeply disturbed. Other officials suggested that the salesman be relieved of his job. But the company president decided instead to consult a psychological service. He came to us, and we recommended personality studies of both the president and salesman.

These analyses pinpointed the trouble. Outwardly, the salesman had always seemed an outgoing, fairly self-confident individual. But his answers to questions showed him to be a complete introvert underneath, with strong feelings of self-consciousness and insecurity, and a dislike for working under pressure.

The employer, on the other hand, was a hard driving extrovert. It was a total surprise to him to learn that to the salesman he had worked with for years he represented pressure. We suggested ways in which he could make the salesman feel less driven, and the situation improved immediately.

Another concern couldn't seem to build and keep a sales staff. Salesmen came and went. They seldom produced as their employer thought they could and should.

The head of the firm was a "hard-headed business man" who thought psychology was one of the frills business could do without. In desperation, though, he finally brought his personnel problems to us.

We tested each of the firm's salesmen and turned over our analyses to the boss. Two of the men showed far more promise as permanent employees than did the others. We outlined the kind of supervision we thought would encourage them to work effectively.

Today the company has only these two men on its selling staff, and sales are far higher than they ever were when the firm was trying to hold together a staff of several men working only half-heartedly.

The art of supervising lies in controlling the undesirable and handicapping tendencies in an employee, while encouraging positive potentials and talents.

Since outward behavior often hides, rather than reveals, one's inner needs and traits, the average supervisor cannot know that these negative tendencies or positive potentials really are. Here is the key to what

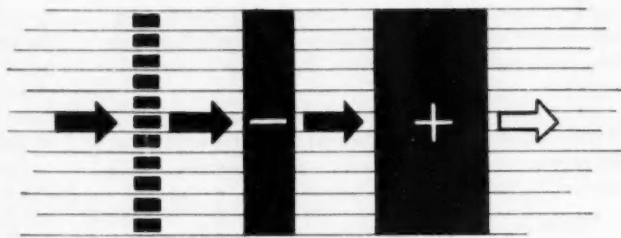
Continued on page 101



ROGER W. BIRKMAN, a consulting psychologist, heads the firm of Birkman and Associates in Houston, Texas. Before forming his own organization in 1951 he taught business and industrial psychology at the University of Houston and served as a psychologist for the Air Force. His "personality method" of selecting and developing personnel is being used by a variety of companies throughout the country.

A Distributor Looks at

Electronic Air Cleaners



EDITOR'S NOTE: The featured article in our November 1958 issue was "A BUSINESS Report on Electronic Air Cleaners". This article pointed up the need for this much neglected product, explained how it works, outlined the market, suggested sales techniques, discussed installation and service problems, pointed up the profit potential.

Apparently this article hit home, for now comes an established and successful distributor to say amen to these conclusions, and to point out why he feels the electronic air cleaner is a natural product for air-conditioning distributors and dealers to handle. This voice from the firing line is that of J. Norman Riley, president of Standard Air & Light Corp., Pittsburgh, Pa. And here are his opinions as digested by REFRIGERATION & AIR CONDITIONING BUSINESS.

THERE ARE FIVE GOOD REASONS why the electronic air cleaner is a natural "plus" product for air-conditioning distributors and dealers to handle:

1. It supplies a definite need for better air cleaning.
2. It can be sold to the same people who buy heating and cooling units.
3. Installation and maintenance of this product requires the same skills used to install and service air-conditioning units or systems.
4. It's a low overhead item because both prospects and personnel are already at hand.
5. It offers a means of boosting by 10% the profits on air-conditioning sales.

Air-conditioning equipment generally has been developed to a point where it gives more than 90% efficiency compared to the expected results. But the average filter in a packaged unit or in a built-up air-conditioning system only has an efficiency of from 10 to 15%. I would hate to think what would happen to our industry if cooling, heating, and air handling equipment produced only 20% of the efficiency required of good design.

To correct this situation it is necessary to raise filtering efficiency up to the efficiency level of the rest of the unit or system. One way to do this is to install an electronic air cleaner, for electronic air cleaners of good design have an efficiency of approximately 90%.

A distributor not only wants the equipment he handles to give top performance at the start, but also for many years to come. His customers expect this.

One of the most important reasons for air-conditioning failure is that the coils become covered with dust. Dirt and dust make excellent insulators. A poor filter can cause reduced cooling and heating capacity. Customer complaints may start when this happens.

You can protect the heat transfer coils much longer with an electronic air cleaner. Sell your customers one and they will get better results from your equipment.

We also have a duty to supply our dealers with top equipment so it can be sold at a profit. The dealer profits only if the equipment can be sold with a minimum overhead.

The product also must meet a definite need. It must be sold at a price which can be written off by the benefits the customer receives over the life of the product.

It's easy to prove to a customer that an electronic air cleaner will pay for itself. Greater cleaning efficiency means greater dividends for the customer from his equipment.

A distributor's toughest job in selling electronic air cleaners is to get the dealer to push them. Try suggesting to the dealer that he attach a separate proposal for an electronic air cleaner to every quotation he submits for cooling and/or heating. If a dealer does this he is certain to make the prospect curious. He then can go into his sales pitch.

The electronic air cleaner is a low overhead item because the dealer already is in contact with a prospect for air-conditioning or heating. If he follows the separate proposal idea it costs him little to get in touch with his prospects. They are his heating and cooling customers.

Also he can train and use the same people to install air cleaners as he uses for packaged equipment and air handling units. And there is nothing special in the bookkeeping which would boost his overhead.

An electronic air cleaner will add about 10% to the selling price of an air-conditioning system which includes cooling. This percentage is higher on straight

Continued on page 107

We Point with Pride to. . . .

25

As we enter our twenty fifth anniversary year, we are proud... proud not for ourselves, but for the quarter of a century of trust, patronage and loyal support from you, the Wholesalers, Manufacturers, Service Engineers, Contractors, Architects and Engineers in the Air Conditioning and Refrigeration Industry... without whom, this would not be possible.

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Our 25th Anniversary... 1934-1959

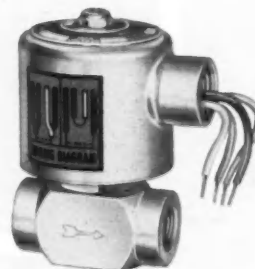
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Our 25th Anniversary.....1934-1959

LITHO IN U. S. A.



What Does This Seal Mean To You

in selling air-conditioning?

by Jim McCallum, editor

How MANY TIMES in the past few years have you questioned the rated capacity of unitary air-conditioning equipment?

How many times has your prospect said to you, "... but your competitor's 3-hp equipment produces 3½ or 4 tons of cooling."

How many times have you raised your eyebrows at capacity figures shown on specification sheets or other literature and wondered how these capacities were calculated?

If you have been selling any air-conditioning in the past four years you surely have bumped head on into this capacity problem.

The seal that you see above can be the answer to the problem. This seal represents to you and your customers a guarantee of the integrity of the air-conditioning industry in rating the capacity of unitary equipment.

The idea that gave birth to this seal started a couple of years back when the manufacturers began to realize that a few of their number were confusing dealer-contractors and users of their equipment by claiming capacities that were not figured in accordance with accepted practices.

In an effort to correct this situation, the Air-Conditioning and Refrigeration Institute established a formula under which equipment could be rated on a standardized basis. This formula was called ARI Standard 210-58.

The only trouble was that this was just a voluntary standard which manufacturers could use or not, as they saw fit, in making their equipment ratings. There was nothing to compel or induce them to comply with

the standard, so many of the ones who had been misrepresenting their ratings kept right on doing so.

So the manufacturer who did a conscientious job of rating his equipment in accordance with Standard 210 was penalized because he could not be sure that his competitors were rating their equipment on the same basis. In fact some competitors deliberately gave themselves a competitive edge in rated capacities, and all the aggrieved manufacturer could do was scream foul.

As competitive battle lines developed it became apparent that the only result of this inability to control advertised capacities would be a weakening of the entire industry. Dealer-contractors would become wary of any quoted capacities, and the user would throw up his hands in despair at the futility of trying to determine who was telling the truth.

Truly this was an industry problem. The only way to solve it was by industry cooperation and agreement.

Now the unitary air-conditioner section of ARI, in cooperation with the National Warm Air Heating and Air-Conditioning Association, has established an equipment certification program built around this seal. Here is how this program works.

To date 30 of the leading manufacturers of unitary equipment (names are listed at the end of this article) representing more than 80% of the total U. S. production of such units have signed a contract with ARI in which they agree to comply with these conditions:

(1) To produce, test and rate all residential and commercial type air-conditioners of less than 135,000 Btu/hr cooling capacity in accordance with ARI Standard 210.

(2) To furnish to ARI all test data on these units.

Upon acceptance of this test data ARI will grant to the

Continued on page 102



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NO WAXING, EVEN AT ULTRA-LOW TEMPERATURES



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SUNISO OIL

Dual-inhibited against sludging, breakdown and copperplating. With new Suniso G Oil, you can lubricate your refrigeration equipment more safely and surely than ever before. Suniso G is dual-inhibited to prevent oil breakdown, sludging and copperplating. It's on your wholesaler's shelves. Ask for it—end your lubrication headaches today.



Suniso is distributed nationally by Refrigeration Division, VIRGINIA SMELTING CO., 285 Jefferson St., West Norfolk, Va.



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REFRIGERATION & AIR-CONDITIONING

by Arthur H. Farr

A New Approach to Supermarket Air-conditioning

THE TREND among the larger supermarkets today is toward operation of all refrigerated fixtures and facilities with air cooled condensing units. This trend has set the stage for the design of an air-conditioning system that would also be air cooled and yet would not detract from the architectural appearance of the market building.

Before discussing the design of such a system, however, it would help to understand the background which made it possible.

The post-war increase in water consumption touched off a nationwide feeling of concern over falling water tables and inadequate water distribution systems. Most of the metropolitan areas quickly passed legislation requiring the use of water saving devices with large refrigeration and air-conditioning systems, or imposing a

surtax on water used by such systems.

As a result, many supermarkets were equipped with cooling towers to handle the water requirements of their refrigeration and air-conditioning systems. The refrigeration equipment operated year-round, so the tower had to be furnished with an inside tank and winter controls to prevent freezing. Such systems were further refined when market owners insisted upon automatic changeover to city water in event of tower failure.

It was at this stage of development that system cost became a factor in forcing the change to air cooled equipment. Large multi-circuited air cooled condensers began replacing cooling towers on supermarket roofs all over the country. The low ambient tempera-

ture problems inherent with air cooled condensers were overcome with various types of back-pressure control valves which reduced the effective condensing surface in cold weather.

This approach failed to save money, however, because of the many refrigerant lines which had to be run to the roof, and the greatly increased cost of refrigerant resulting from the use of remote condensers and the long refrigerant lines they made necessary.

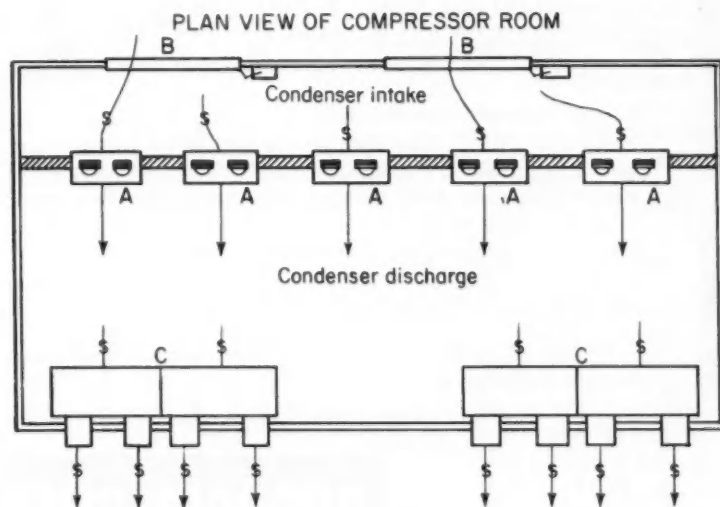
But by this time supermarkets already had started the move away from crowded downtown sections to suburban shopping centers, and consequently space within the store buildings was no longer at such a premium. So it was now economically feasible to build a compressor room in the market and get back to systems using individual air cooled condensing units.

With this arrangement it became necessary for the machine room to have a gravity air intake, with some means of dampering off during low ambient periods, and a power exhaust system to dissipate the heat rejected from the multiple air cooled condensers.

This machine room approach, with removal of the roof-mounted condensers, proved popular because market operators had been striving to improve the external appearance of their buildings.

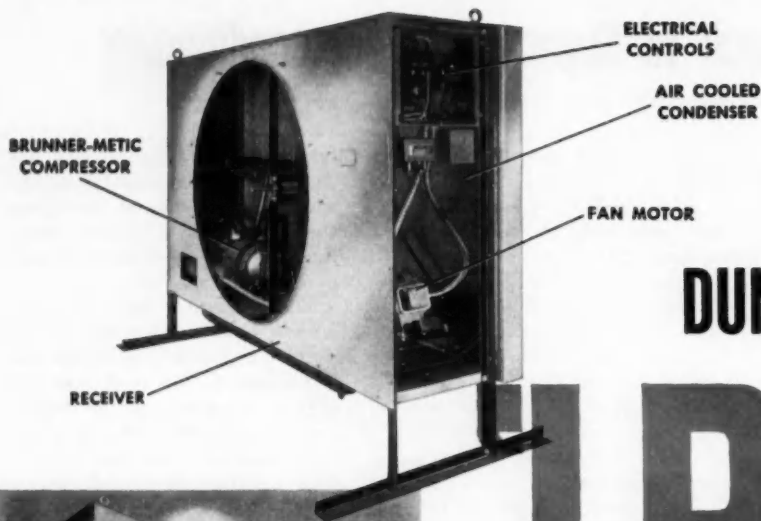
To illustrate this application, let's consider a supermarket with requirements of 50 hp of refrigeration compressors and 40 tons of air-conditioning. The compressor room for this market might be designed as indicated in the accompanying drawing.

The air cooled condensing units are mounted on conventional racks (A) spread in a line across the



- A - Air cooled condensing units on conventional racks.
- B - Motor operated air intake dampers.
- C - Air cooled condensing units.

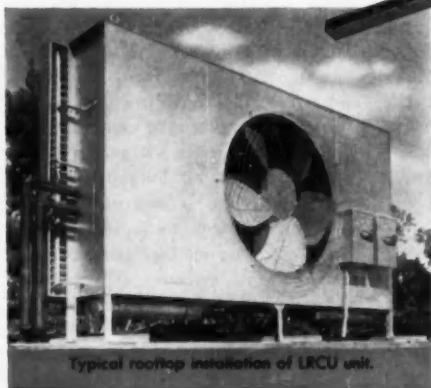
NEW CONCEPT IN BUILT-UP AIR CONDITIONING SYSTEMS



DUNHAM-BUSH

'LRCU'

UNITS

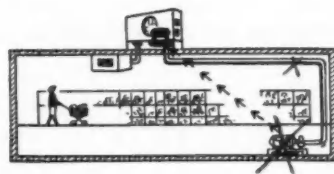


Typical rooftop installation of LRCU unit.



Exterior installation of LRCU units, mounted on "T" beam frame.

By incorporating the compressor and receiver in the same casing as the remote air cooled condenser there are substantial savings in space and installation costs on built-up air conditioning systems.



Eliminate expensive installation costs . . . plumbing . . . wiring . . . with a Dunham-Bush 'LRCU' Large Remote Condensing Unit. Here's a complete package consisting of a remote air cooled condenser, semi-hermetic compressor, magnetic starter, receiver, controls and refrigeration accessories all piped and wired.

Install on the roof (or other convenient location) and run the necessary refrigerant lines to the lowside equipment. Make electrical connections and the system is ready for operation.

Available in 5 models from 10 to 30 tons. Two-step starting makes units readily adaptable for capacity control. Two compressors furnished on 20, 25, and 30 HP units.

Write today for complete information.

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REFRIGERATION & AIR-CONDITIONING

room. A stud wall built around the racks separates the intake sides of the condensing units from the discharge sides.

Motor operated air intake dampers (B) are mounted in the outside wall on the intake side of the compressor room. The dampers are operated from a temperature controller sensing the outdoor ambient temperature.

Discharge Becomes Exhaust

The air cooled condensing units for the air-conditioning system (C) are mounted on the discharge side of the compressor room partition, with discharge air ducted out of the compressor room.

In this arrangement the discharge air from the refrigeration condensers becomes the intake air for the air-conditioning condensers. The heat rejection of the refrigeration condensers must be added to the outside design temperature to arrive at the inlet air temperature to be used in selecting the air-conditioning apparatus.

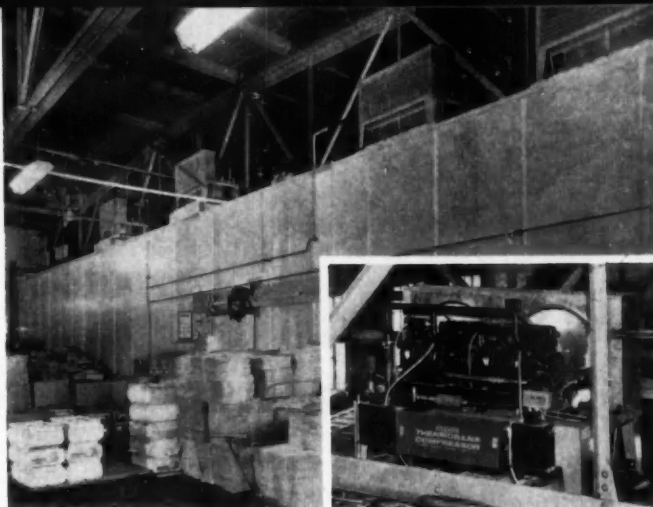
Experience indicates that 10 degrees F should be added to the local outside design temperature. Thus, for an area with 95 F outside design temperature, the air-conditioning units would be selected to furnish calculated capacity requirements with 105 F air entering the condensers.

Winter Control Possible

In this system the air-conditioning condensers handle the discharge air from the refrigeration condensers and exhaust it outdoors. Thus they replace the power exhaust system required to dissipate the heat build-up in the conventional compressor room.

Propeller fan type of air cooled condensing units would not be suitable for the air-conditioning phase of this system since the discharge air from the condensers must be ducted out of the compressor room.

Winter control of head pressures can be maintained by throttling the air intake air louvers and shutting off one or more of the air-conditioning condenser blowers by means of reverse-acting pressure controls.



SAVINGS IN SPACE as well as time were made possible in this frozen food warehouse installation by mounting the equipment on top of the cold rooms. Inset shows details of "packaged" compressor systems which speeded the job.

Factory-assembled units make possible this

HURRY-UP INSTALLATION

CUT NORMAL INSTALLATION TIME by 88% on a frozen food warehouse job? That's just what happened recently when two mechanics of J. J. Berk Co., Philadelphia refrigeration contractor, took only one day instead of the normal 9 days to complete a 24-hp low-temperature system for Felix Spatola & Sons, one of the city's largest frozen food distributors.

These mechanics weren't supermen. And they didn't work around the clock, either.

According to Joseph Berkowitz, head of the contracting firm, the answer to the speedy installation lay simply in the fact that the four 6-hp Kramer Trenton compressor systems used were factory-assembled packages. Each included the compressor, along with all refrigeration and electrical controls, tested and run-in before reaching the job site.

This meant that all the men had to do was run the piping from the compressors to the evaporator coils inside the room. Once the power connection was made to the pre-wired control on the compressor, they only needed to throw on the switch and the systems were ready to operate.

Felix Spatola III, vice president of the distributing firm, specified that the new facility should be able to maintain a constant zero temperature, be automatic and not need any floor space for any of the refrigeration equipment.

The systems installed met every specification, Berkowitz said. The re-evaporative hot gas defrost assures the required constant temperature because of rapid defrosting. Defrost time requires only six to eight minutes.

By mounting the compressor systems on the roof of the storage room and suspending the evaporator coils from the ceiling, every foot of valuable floor space was made available for the storage and processing of food orders.

The storage room measures 90' long, 60' wide, and 15' high overall. It is divided into two sections. The freezer section is 66 x 60 x 15'. It has 8" of glass fiber insulation, and is held at zero F. The adjoining room is 24 x 60 x 15' with 4" of glass fiber insulation between the vapor sealed exterior plywood. It is kept at 36 F for the storage of fresh fruit and produce.

Two 48" fans ventilate the compressor area.

Milton Schwartz Elected NCRSA President, Profitable Selling Theme of Convention

MILTON I. SCHWARTZ, S. & M. Schwartz & Co., New York City, was elected president of National Commercial Refrigerator Sales Association at its 12th annual convention in Miami Beach, Fla.

Other newly elected officers: Ray Winther, Ray Winther Co., San Francisco, first vice president; Dudley M. Cawthon, Dudley Cawthon, Inc., Miami, second vice president; Donald D. Denny, Modern Market Fixtures, Inc., Dayton, third vice president; and E. B. Ward, Baker-Ward, Inc., South Bend, Ind., treasurer.

Directors elected to three-year terms were: James A. Scatena, Scatena-York Co., San Francisco; Wilbur S. Hoyt, Hoyt Refrigeration, Inc., LeCompte, La.; and Ray L. Eggert, R. L. Eggert Co., East Orange, N. J.

Aubrey Deal, Deal-Warren Co., Jacksonville, Fla., was elected to fill the directorship vacated by Phil Schnell, whose term ends next year.

Marie Lawton, who continues as executive secretary, reported a gain of 61 new members the past year.

Direct selling by manufacturers to users was the main problem discussed by the joint relations committee of NCRSA and Commercial Refrigerator Manufacturers Association. An encouraging sign, according to George Wiedemer, a past president of NCRSA, is that manufacturers now are willing to discuss this problem.

Wiedemer reports that the committee has recommended that manufacturers point out to voluntary chains the advantages of buying through a local distributor.

Harry Hattenbach, retiring president, forecast a bright future for the distributor in the commercial refrigeration and air-conditioning business.

But he said members must be ready and qualified to do the job.

Reporting that the percentage of manufacturer sales through distributors had shown a slight gain, he noted that the top ranking distributors were responsible for this.

Hattenbach wondered whether the small distributor could survive today's pressures and big business operations. He suggested that the small distributor add more salesmen, study merchandising techniques, and modernize his business philosophy.

Bernard Stevens, Miami supermarket operator, offered the viewpoint of a customer. Stevens urged the local distributor to plan new stores and handle the installation and maintenance of all equipment. The customer could hire his own engineers, but this would cost too much, he said. He explained that the distributor could do these things easier, cheaper, and more effectively.

E. B. Ward said, "We are no longer sales distributors. We are distributor contractors." Ward advised low-cost selling and distribution.

to get lost business due to direct-purchase market jobs. Distributors must offer and give a full line of food market equipment to complete a store, he said, and also have top personnel.

Denny, another distributor, described how he sold prospects on complete new stores. Denny explained that his firm sold a complete program, not just one unit. He pointed out the importance of knowing merchandising, advertising, buying, leasing, building, and parking lot arrangements.

Typhoon Air Conditioning Co. president Don Petrone stated that the buyer is looking for the most value and not just the cheapest price. He said one shouldn't be afraid to add a normal profit to each supermarket estimate.

He also urged commercial refrigerator distributors to include air-conditioning in their products. More money will be spent for air-conditioned supermarkets than any other retail business, he said.

Schwartz, new NCRSA president, offered some tips on expansion. He said the distributor should delegate authority, develop business controls, develop managers for new departments, and then give these changes time to work.

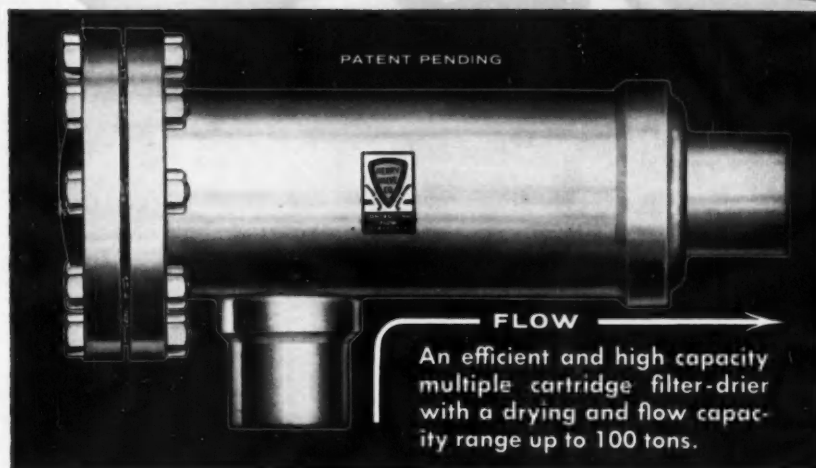
Improper management of cash was cited by Hoyt as a common downfall of many an otherwise successful businessman. Hoyt advised distributors to always take their discounts, get a daily report on cash from their bookkeepers, buy the right insurance, keep aside enough profits for growth, avoid tying up capital in fixed assets, and meet their banker twice a year whether or not they need money.

WINNER of the Vice President's Cup as top distributor of Carrier icemakers during the past year was Industries Sales Corp., New Orleans, La. Louis Busenleiner (left), president of the distributorship, accepts the award from Michael Kane, manager of Carrier's icemaker department, as Russell Gray, Carrier vice president and donor of the cup, looks on.



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HENRY CARTRIDGE
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An efficient and high capacity multiple cartridge filter-drier with a drying and flow capacity range up to 100 tons.

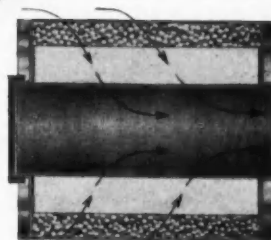
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Type 875-CMS Cartridges for these new filter-driers are completely self contained, self sealing and self positioning. Only a few seconds time is required to insert cartridges, resulting in a minimum loss of cartridge efficiency as the desiccant cannot pick up any appreciable amount of moisture from the air because of installation speed.

A parallel flow pattern through the individual cartridges results in maximum efficiency and low pressure drop.

Available in 1½" to 2½" O.D. Solder connection sizes.

Write for Henry Bulletin 75-FD describing these units.



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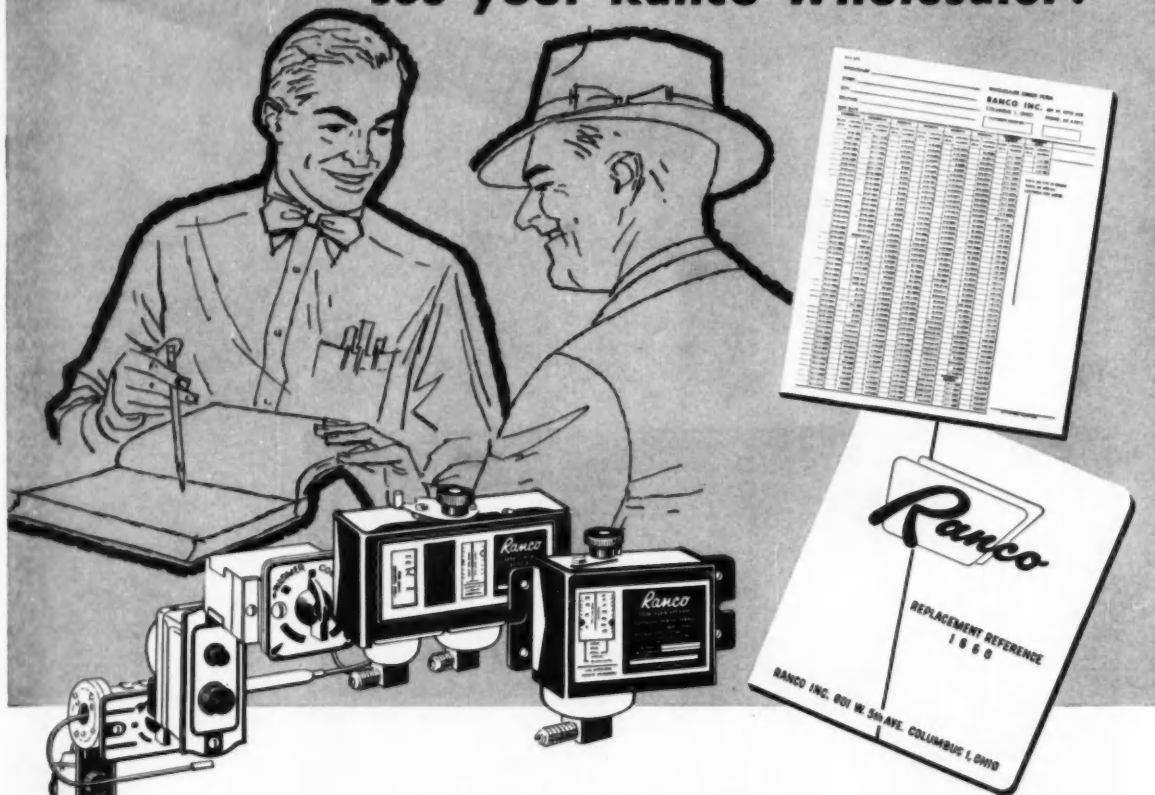
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Fourteenth International Heating & Air-Conditioning Exposition, Philadelphia, Jan. 25-29, 1959

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REFRIGERATION & AIR-CONDITIONING

Tips on Maintaining Steam and Hot Water Unit Heaters

REGULAR MAINTENANCE of steam and hot water unit heaters is as important as proper installation if customers are to get the most efficient and economical operation out of systems using these units. (Some practical installation pointers were offered in the *Here's How* section of last month's issue.)

Proper care is not expensive, and it pays large dividends in trouble-free operation. Because each make of unit heater differs in construction, specific maintenance

instructions offered by the manufacturer should be closely followed. Some general essentials of care common to all such units, however, are presented by the Air Moving and Conditioning Association, Inc.

Regular inspection—This is the most important factor of all. Make a simple check sheet showing the date of inspection for each heater. In normal operation an inspection every four months should be sufficient. If the atmosphere is extremely dirty, more frequent inspections are needed. Check for dirty heating elements, loose connections and excessive vibration. Clean the fan and the outside of the motor.

Motors—Follow the motor manufacturer's instructions. Save the tags or instructions supplied with the unit. If they are missing, write either to the motor manufacturer or the unit heater manufacturer for the information, giving the complete motor nameplate data.

A separate, manually operated, thermal-overload starter is recommended for each unit. Properly sized fuses should be used.

Lubricate motors in accordance with the manufacturer's instructions. Ball bearing motors are shipped with the bearings packed in grease. This lubricant is usually sufficient for one year's operation.

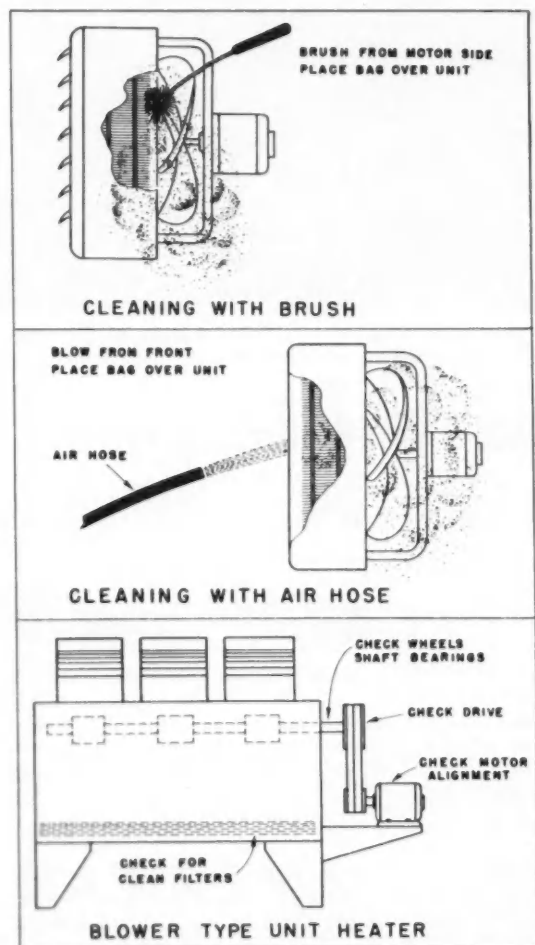
Warning: if the motor has a fitting for a pressure gun, be very careful not to over-lubricate, for the motor can be damaged if the lubricant reaches the rotor. First remove the pressure relief plugs to allow the old grease to flow out. Use the high temperature grease recommended by the manufacturer.

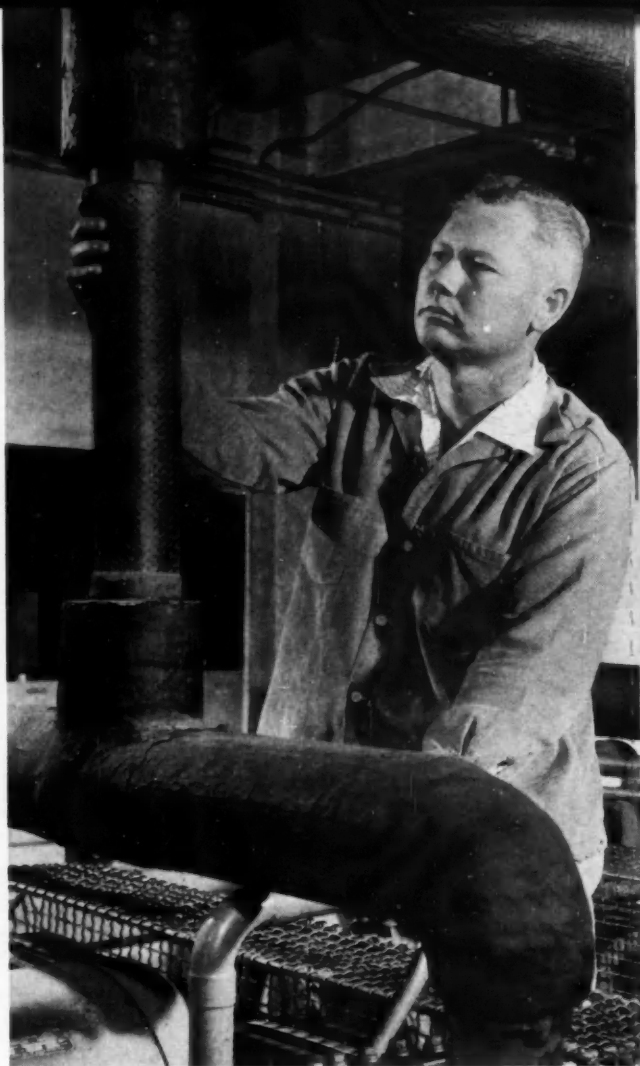
Sleeve bearing motors are normally equipped with wool-packed, oil-lubricated bearings. Use a recommended type of oil. Fill the cups before operating a new unit heater and refill approximately every 2000 hours. Do not over-lubricate.

Heating elements—Clean the heating elements at least once a year; more often if the unit is operating in a dirty or corrosive atmosphere.

Dirt can seriously reduce the heating capacity of the unit. To remove it brush the fins on the side where the air enters the unit, then turn on the fan. Place a bag over the face of the unit to catch the dirt. High pressure air can be used effectively to blow out the element from the side where the air leaves it.

If a very thorough cleaning is needed, remove the unit and spray the heating element with a mild alkali





Mr. Crosson points to 1 $\frac{1}{4}$ " American VE's used on small compressors that service meat boxes, etc., and 2 $\frac{1}{4}$ " American VE's installed in suction and discharge lines of air conditioning units employing Freon 12, at Winn-Dixie food market—Kwik-Chek—in Sulphur Springs, Fla.

"American Vibration Eliminators have been good for millions of vibrations on our jobs—with no failures"

says James Crosson, Refrigeration Service Manager, Winn-Dixie food market chain, Tampa, Florida

"People would walk out of our food markets if the air conditioning broke down—and chances are they wouldn't come back. So we really *depend* on American VE's.

"In the 8 years we've used them, they've been good for millions of vibrations—with no failures reported and no maintenance needed. Without American VE's, we would have had solder joints breaking, loss of refrigerants, and other costly breakdowns."

YOU CAN USE AMERICAN VE'S WITH CONFIDENCE BECAUSE—

The right metal does the job. The special

tin-bronze alloy—the result of American Brass metallurgical know-how—is tailored for the refrigeration and air conditioning industries.

Double bronze braid where extra protection is needed. On all American VE's 2 $\frac{1}{2}$ " O.D. or larger. Neoprene latex-covered Vibration Eliminators are available for use when danger exists from condensed moisture on the outside of the VE.

Clean, dry, tested, protected. Snip the end of the vaporproof polyethylene bag and you have a factory-fresh unit to install in the line... clean, inside and out!

Packaged for your convenience, protection. The new boxes are sturdy, easy to open, easy to identify. No confusion or fumbling.



Listed by Underwriters' Laboratories through sizes 3 $\frac{3}{8}$ " O.D.

For descriptive folder write: The American Brass Co., American Metal Hose Division, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.
57207 Rev.

WHEREVER CONNECTORS MUST MOVE

AMERICAN
FOR AMERICAN VIBRATION ELIMINATORS
SEE YOUR

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cleaning solution. Rinse well afterward. A steam gun can be used for cleaning and rinsing.

Fan — Clean at periodic intervals. A dirty fan will get out of balance and cause noise, excessive vibration, and may damage the bearings. Check to see that the fan is in the proper position and that set screws are tight.

Casing — During inspections clean the casing and remove rusted or corroded spots. Retouch with paint.

Internal corrosion — Prevention of internal corrosion not only protects the unit heater but also the whole heating system. In major installations it is advisable to consult water-treatment concerns on boiler water treatment. De-aerate the boiler feed-water, particularly when large amounts of make-up water are used.

Use boiler compounds with care and sparingly; excessive amounts can carry over into the steam and form an acid condition that will attack the heater. Too much compound can cause a boiler to foam and load the system with water. If this happens, drain and refill the boiler until the foaming stops.

Adequately vent the units to remove air from the system, especially on high pressure steam systems.

Make sure that the condensate drains quickly and completely. If it lies in the unit, corrosion may occur, heating capacity will be lowered, and water hammer may also follow. Condensate in the unit can freeze when the heater is not in operation and break the heating element.

Traps, check valves, etc. —

Use of traps instead of check valves is recommended. This equipment also must be inspected periodically for worn parts that leak or stick. Bellows that do not function may cause the unit to be air-bound. Jammed parts will not allow the condensate to drain quickly and trouble results.

Traps should be selected on the basis of the condensate to be handled, and not on the pipe size. In case of doubt, consult the trap

Continued on page 71

Heating & Airconditioning Wholesalers Urge Action on 5-Year Warranty

ANOTHER BLAST AT THE 5-YEAR WARRANTY was leveled at the recent convention of National Heating & Airconditioning Wholesalers, Inc. This association's air-conditioning committee, under the chairmanship of R. W. Allen of Winston-Salem, N. C., submitted to the membership a resolution urging air-conditioning manufacturers to drop the 5-year warranty and substitute a standard 1-year warranty against manufacturing defects. This resolution will be voted upon at the group's next convention scheduled for May in Los Angeles, Calif.

Text of the proposed resolution follows:

WHEREAS it is common policy for manufacturers of air-conditioning equipment to supply a 5-year warranty against manufacturing defects on such equipment, and

WHEREAS the charge for this warranty is either included in the product price or as a mandatory extra, and

WHEREAS this warranty was designed to offer to the end user of equipment protection against manufacturing defects for a 5-year period, and to build the customer's confidence in such products, and

WHEREAS investigation of various manufacturers' warranties has proven that these warranties lack consistent description as to their coverage, and

WHEREAS this has caused confusion and misunderstanding on the part of the customer as to what coverage is provided by the warranty, and

WHEREAS the customer pays for this warranty whether or not he understands the scope of its coverage, and

WHEREAS because of these facts the 5-year warranty has failed to accomplish its original purpose of creating customer confidence in the product and satisfaction with its use, and

WHEREAS the 5-year warranty also has been detrimental to the wholesaler and his dealer-contractor customers because:

- (1) it offers no incentive to carry adequate service parts inventories;*
- (2) it is costly to administer, and therefore these costs must be passed on to the end user;*
- (3) it has been conducive to improper application and sloppy installation;*
- (4) it has been conducive to improper diagnosis of service complaints;*
- (5) it has restricted the opportunity to sell preventive maintenance contracts to customers;*
- (6) it has led to loss of profit on service labor and misunderstanding on the part of some dealer-contractors in charging back labor allowance;*
- (7) it has increased the cost of equipment without accomplishing the desired result;*

THEREFORE be it resolved that we as wholesalers and members of NHAW advocate that the air-conditioning manufacturers discontinue the 5-year warranty as it is now constituted and substitute a standard 1-year warranty from date of installation against manufacturing defects in air-conditioning products, and that the staff of this association be directed to contact these manufacturers to inform them of this association's stand on this matter.



one source
for all thermostatic
expansion valve needs

Single out A-P for triple duty

A-P's complete capacity line of thermostatic expansion valves ($\frac{1}{4}$ to 25 tons, R-12) is geared to perform on:

1. **Most commercial applications** where pressure limit is not required. Standard liquid charged TXVs may be applied universally. Special liquid charges are available for critical applications.
2. **Air conditioning applications** requiring pressure limit. A-P gas charged (type 209) TXVs are ideal for the job.
3. **Low temperature applications** where pressure limit is required. Use A-P liquid charged valves with adjustable pressure limit.

These valves complement industry's most complete line of refrigeration and air conditioning controls. Take advantage of this single source availability — your assurance of dependable performance.



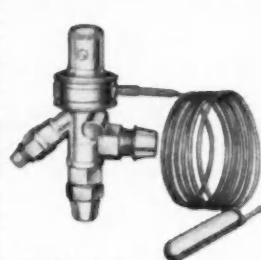
MODEL 206C
Fixed superheat. R-12, R-22 or Methyl. Capacity: $\frac{1}{4}$ thru $1\frac{1}{2}$ tons R-12.



MODEL 207DE
Adjustable superheat. External type equalizer. Capacity: $\frac{1}{2}$ thru 3 tons R-12. 1, 2, 3, 5 tons R-22.



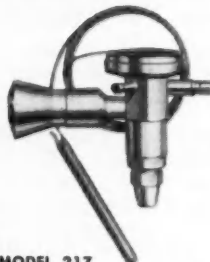
MODEL 207C
Adjustable superheat. R-12, R-22 or Methyl. Capacity: $\frac{1}{4}$ thru $1\frac{1}{2}$ tons R-12.



MODEL 209
Adjustable pressure limit and superheat. R-12, R-22 or Methyl. In $\frac{1}{4}$ thru $1\frac{1}{2}$ tons R-12.



MODEL 214
Adjustable superheat. 1, 2, 3 tons R-12. 2, 3, 5 tons R-22.



MODEL 217
Adjustable superheat. Solder connections. Capacity: 5, $7\frac{1}{2}$, $12\frac{1}{2}$ tons R-12; $7\frac{1}{2}$, 11, 19 tons R-22.



MODEL 218
Adjustable superheat. R-12 (16, 19, 25 tons). R-22 (25, 30, 40 tons). Available with pressure limit.



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Both flare and solder types. Capacities: flare type thru 3 tons R-12. Solder type thru 40 tons R-12.



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Controls That Make Modern Living Possible

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manufacturer. Clean strainers regularly.

Forced hot water unit heaters — Units in these systems should be equipped with suitable air vent valves or other means for rapid and complete removal of air. Make sure that the units can be completely drained if the system is shut down in freezing weather. It is well to sectionalize the system so that units can be changed without draining the whole system.

Blower type unit heaters — In addition to points previously covered, attention must be given to the fan shaft bearings, motor, and the coupling or belt drive. The fan shaft should be inspected for end play, worn bearings and loose set screws. Follow the manufacturer's lubrication instructions.

Service sleeve bearings often enough to maintain the oil at the proper level; this means at least once every three months. Ball bearings should be carefully greased every three months.

If the unit is direct-connected, check the coupling for alignment and wear. Many units of this type have V-belt drives which must be checked for proper pulley alignment and wear on the belts. If it is a multiple V-belt drive, replace all belts with a matched set if one is worn; do not replace one belt only.

Check the motor hold-down bolts. Tighten them if loose, then make sure motor alignment is correct.

These units are sometimes equipped with air filters. If filters are allowed to clog with dirt, air circulation and heating capacity are greatly reduced. Clean or replace filters regularly.

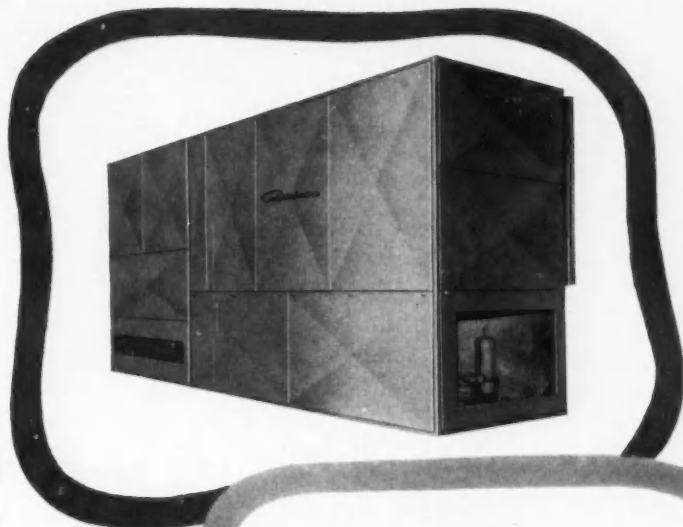
OCCUPIES NEW OFFICE

Flexonics Corp. has moved its central regional offices to 1500 Trombly Ave., Detroit 11, Mich. Bob Arnold will continue as regional sales manager. The new location covers 20,000 sq.ft. Services will include selling, application engineering and order processing. Additional services are soon to be added.

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Central Station

Packaged Air Conditioning



7½-60 h. p.

water-cooled
or
evaporative condenser

Water-cooled or evaporative condenser models in nine sizes from 7½ to 60 h.p. provide a selection from which a combination can be arranged to fit any particular situation. Each model is available in different arrangements, matched to meet any space requirements.

All units are completely engineered and packaged—require only power, ductwork and water supply connections for quick installation. And, all are factory pre-tested to minimize performance testing time.

Write today for Form AC-1001 describing the new Capitolaire Central Station *Packaged* Air Conditioning System, or contact your nearest National-U.S. representative. He'll be glad to help you.



National-U. S. Radiator CORPORATION

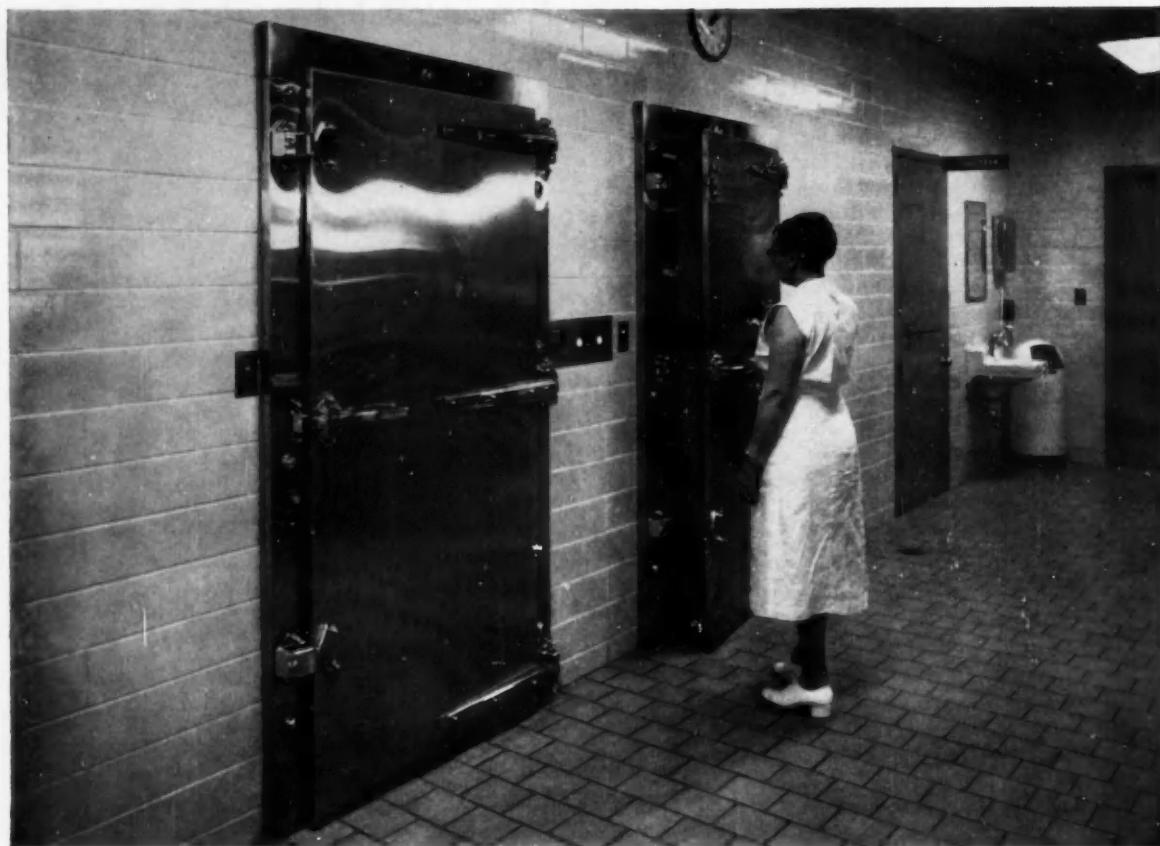
HEATING AND AIR CONDITIONING DIVISION
Johnstown, Pennsylvania

In Canada: 77 York Street, Toronto

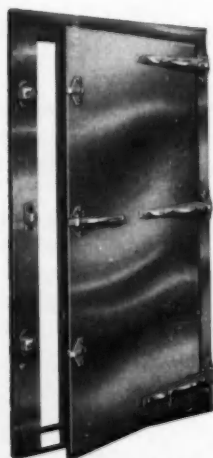
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For gleaming, sanitary appearance, easy cleaning, minimum maintenance, Jamison Food Service (FS) Doors deliver top performance with year-after-year economy.

Jamison's many years of experience in this special field are your assurance that Jamison FS Cooler or FS Freezer Doors will meet every requirement for food storage in institutions of all types.

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REFRIGERATION & AIR-CONDITIONING

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FOR AUTOMATIC, ALL-WEATHER OPERATION USE H&M AIR-COOLED CONDENSERS WITH LIMITROL



All-weather operation of air conditioning and refrigeration units is automatic—no manual changeover is required—when the exclusive Limitrol modulating valve is used with Halstead & Mitchell's air-cooled condensers. The Limitrol effectively maintains balance between condenser and compressor under all outdoor ambient conditions by regulating condenser capacity. And winter problems with water-cooled systems are avoided.

H&M's air-cooled condensers with exclusive Turbu-Flo fin design allow peak Btuh at the evaporator. The embossed, streamline pattern provides better air wash, reducing air film resistance, and improving heat transfer by up to 15%. Wide fin spacing assures rated capacity longer. Service costs are less, too.

Installations involving many condensing units are made much easier and less costly. Halstead & Mitchell will provide multiple circuiting to meet specified requirements (if requested) at no extra charge—on all 12 models.

Call your wholesaler for more information or write Halstead & Mitchell, Bessemer Bldg., Pittsburgh 22, Pa.

SEND FOR NEW BULLETIN AC-101

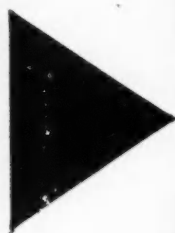


'Turbu-Flo air-cooled condensers for remote installations'



*extra pure
extra dry
guaranteed weight*

FIRST



in factory-sealed containers!

PENNSALT ISOTRON® REFRIGERANTS

ISOTRON Refrigerant 11 (CCl₃F)
ISOTRON Refrigerant 12 (CCl₂F₂)
ISOTRON Refrigerant 22 (CHClF₂)
ISOTRON Refrigerant 113 (CCl₂F-CClF₂)
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Why take chances when you can get guaranteed purity, dryness and weight with Pennsalt Isotrons, the original factory-sealed refrigerants? Isotrons are produced in the nation's most modern fluorinated refrigerants plant to rigid specifications that *surpass* all accepted industry standards. Isotrons cylinders are packed and *sealed by Pennsalt* to guarantee you full weight and freedom from contamination. Play it safe—look for the Isotrons seal!

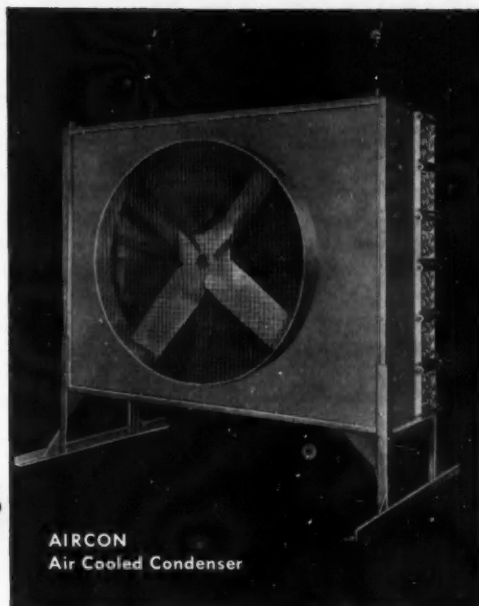
Call or write for more information. Isotrons Department 678, Pennsalt Chemicals Corporation, Three Penn Center, Philadelphia 2, Pa.

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MORE *Models*
MORE *Capacity*
MORE *Performance*



McQuay AIR COOLED CONDENSERS

**UP TO 50 TONS IN A SINGLE
 UNIT—UNLIMITED CAPACITY
 IN MULTIPLE INSTALLATION**

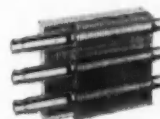
McQuay Aircon remote waterless condenser. Ten models, 3 to 50 ton capacity. Belt or direct drive models. Lifetime ball bearing and slow speed propeller type fans. McQuay Seasoncontrol modulates condenser capacity in accordance with weather for peak performance all year 'round.

WHEN you use McQuay Aircon air cooled condensers you have 10 models to choose from and you get from 3 ton to 50 ton capacity in a single unit! With multiple installations, capacities are unlimited.

You not only get more models and more capacity but you get more performance, because McQuay Aircons have the exclusive McQuay Ripple Fin coils—the finest and the standard of the industry.

With the present emphasis on remote waterless condensers, look to McQuay. Compare construction, compare features, compare the all around quality. Belt or direct drive models are offered. See your McQuay representative or write McQuay, Inc., 1643 Broadway Street N.E., Minneapolis 13, Minnesota.

McQuay
 Means Quality



McQuay units feature the exclusive Ripple Fin Coils which create maximum air turbulence and have wide, full fin collars that act as automatic spacers to form a tube around the coil tube for greatest heat transfer and protection.

McQuay INC.



AIR CONDITIONING • HEATING • REFRIGERATION

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HEATING & AIR-CONDITIONING SHOW

Record Number of Displays to Exhibit Air Moving Equipment, Controls, Tools, Component Parts, and Complete Systems

Air moving equipment will highlight the 14th International Heating & Air-conditioning Exposition to be held January 26-29 at Convention Hall, Philadelphia, Pa. The number of displays is expected to surpass the previous record and demonstrate progress made by the assembled industries.

To be held under the auspices of American Society of Heating & Air-Conditioning Engineers, the event will have many exhibits devoted exclusively to air moving equipment. Displays will range from examples of latest developments for highly critical applications to new and simpler forms intended for everyday use. Included will be such means of distribution as ducts, dampers, mixers and diffusers.

Special features will distinguish almost every display of fans and blowers. One fan-coil unit which will be displayed reverses the direction of flow to take advantage of natural currents of air, for heating or cooling, according to the state of the weather.

Other lines typical of the varied specialties that go into even the most common installations include such items as louvers, volume dampers, damper regulators and grilles, barometric draft controls, draft inducers and chimney caps.

Several exhibits of basic lines will be shown including sheet metal pipe, duct and fittings, pipe and duct forming equipment for use in the shop and field.

Among other specialties will be a self-contained regulator for controlling air volume in dual ducts; also a line of unit ventilators using steam, hot water and chilled water, in which heating or cooling output is controlled within the blower wheels, eliminating dampers and water valves.

A group of exhibits in which many innovations will appear is made up of instruments and controls. This includes the means of

handling air for combustion in furnaces and extends to the more elaborate automatic systems.

In the field of controls, a mechanical Btu meter has been developed to simplify the billing of tenants for services rendered, much as a gas meter does. It operates by measuring the heat absorbed or rejected by the liquid. Its natural application is in central heating and refrigerating plants.

A new development by a manufacturer of air velocity and temperature measuring instruments, is an air velocity transducer. This device can be used in conjunction with an indicator, recorder, or operator in an automatic control system in which air velocity is used as the independent variable.

Several recent developments in

air filtration also will be shown. One is the electrostatic unit which is both permanent and self-charging. This unit has now been developed to a point where it can be cleaned with an ordinary household vacuum cleaner attachment. Mechanical or interceptor type filters with air cleaning efficiencies as high as 95% also will be on display.

One large group of exhibits will be devoted to hot water heating equipment from conventional boilers and several types of new small heater units through circulators and radiation, including baseboard convectors.

Of recent development is a line of high temperature hot water panel-vectors which have been designed to provide a uniform, non-stratified thermal environment without reducers or heat exchangers. The system is applicable to commercial, industrial, institutional and maritime use.

Insulation of many types will be featured in a number of exhibits,

Continued on page 80

Technical Sessions of ASHAE To Feature Heat Pumps, Hydronics, and Corrosion

Thousands of engineers, contractors and architects will gather in Philadelphia late this month to attend the 65th annual meeting of the American Society of Heating and Air-Conditioning Engineers at the Bellevue-Stratford Hotel.

Technical sessions will not start until Monday, January 26, but the registration desk will be open on Sunday, January 25.

ASHAE president E. R. Queer, director and professor of engineering research, Pennsylvania State University, will open the meeting at 9 a.m. Monday morning, January 26. First session is to be a topical session on comfort moderated by C. S. Leopold of Philadelphia.

Seven technical sessions are scheduled including the topical session on comfort, a symposium on hydronics, a symposium on

heat pump performances, and a symposium on corrosion and water treatment.

The topical session on comfort will bring together outstanding experts on the subject including Dr. Thomas Bedford, London School of Hygiene and Tropical Medicine, London, England; Dr. Nello Pace, department of physiology, school of medicine, University of California; and ASHAE director of research B. H. Jennings, who will present papers concerned with indoor environment and human comfort.

The papers selected for presentation at the meeting are related to residential heating subjects, including the location of basement heating supply outlets; pulsations in single-port, gas-fired equipment; and the low frequency combustion noise in oil-burning units.

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A Guide to Exhibitors at the 14th International Heating & Air-Conditioning Exposition

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EVENT: 14th International Heating & Air-Conditioning Exposition.

PLACE: Convention Hall, Philadelphia, Pa.

DATES: January 26-29, 1959.

HOURS: 12 noon to 10 p.m., Monday through Thursday.

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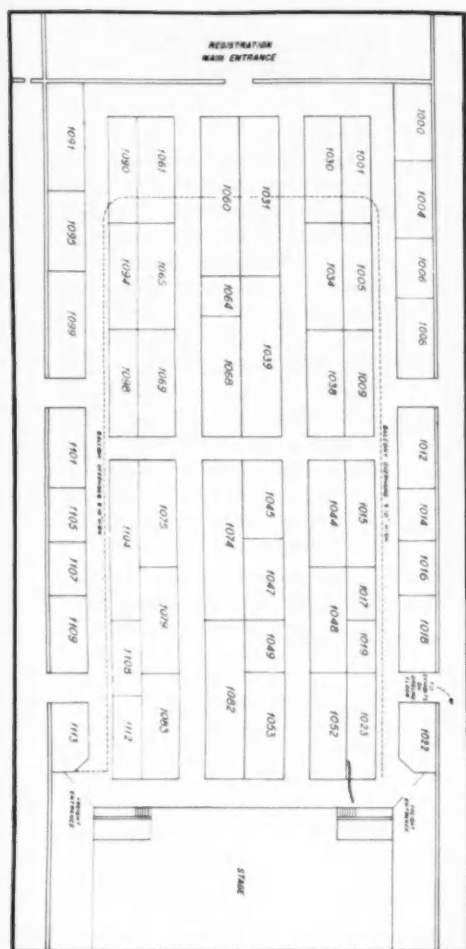
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including the complete range of requirements for fire boxes and boiler exteriors, through piping to underground conduits. Important developments in duct linings will also be shown. These must meet requirements of low surface frictions, absorption of resonance and air-borne sound, as well as thermal insulation.

An array of tools and equipment designed for installation and field work in the heating and air-conditioning business will also be shown.

Displays will range from raw materials through fabricated parts and components to finished machines and highly integrated systems.

TECHNICAL SESSIONS

Continued from page 76

Other topics are concerned with a new way to calculate radiant exchanges, the heat gain through windows shaded by metal awnings, and a probe for the thermal conductivity measurement of dry and moist material.

The 65th annual meeting is planned as follows: first session Monday morning, the second and third sessions concurrently on Tuesday morning, the fourth and fifth sessions simultaneously on Wednesday morning, and the sixth and seventh sessions concurrently on Wednesday afternoon.

Sunday afternoon the Philadelphia chapter of the Society will be host at a Welcome-Pennsylvania Dutch Koffee Klatch. Also scheduled is a luncheon on Monday which will be attended by Richardson Dilworth, Mayor of Philadelphia; a get-together party Monday evening, and the annual banquet on Wednesday evening. Special features include sightseeing tours and a fashion show for the ladies.

NATIONAL-U.S. AWARDS 2 MORE SCHOLARSHIPS

For the sixth consecutive year an opportunity to secure a 4-year college education has been made possible for two high school graduates who reside in communities where National-U.S. Radiator Corp. has manufacturing plants.

Recipients of the scholarship awards this year are John C. Court, New Castle, Pa., and Gary W. Henger, Johnstown, Pa.

National-U.S. Radiator pays college tuition, buys books and pays living expenses to selected high school graduates who want to become engineers, but have no scholarship help and cannot otherwise afford a college education.

During the summer the students may work for the company where they gain experience in various phases of the engineering and manufacturing of heating, air-conditioning and industrial products.

Roche & Hull Marks 25th Year As Wholesaler

Roche & Hull, Inc., Baltimore, Md., is celebrating completion of its 25th year as a wholesaler of refrigeration equipment. The firm was incorporated in 1933 as Parks & Hull Appliance Corp.

George J. Roche, president, feels that prompt service, thorough product knowledge, and the will to serve helped the company survive the trying business years of the thirties. He maintains that the valuable business lessons learned during that period stood the company in good stead in succeeding years.

The business began with refrigeration supplies and parts, fol-



GEORGE J. ROCHE, president, Roche & Hull, Inc., Maryland wholesaler.

THEN AND NOW

is depicted in these pictures of Roche & Hull's first location (right), and its present two-story building (above) which serves as its headquarters in Baltimore, Md. The company operates branches in Salisbury and Hagerstown, Md.



lowed by refrigeration equipment. The next step was the distribution of heating supplies and parts, followed in turn by heating equipment, and then air-conditioning.

In 1947 the company moved from its original location to larger quarters at 1107-19 Maryland Ave. These facilities later were expanded to their present size. As the firm grew it branched out from Baltimore, opening the outlet in Salisbury in 1950 and the one in Hagerstown in 1957.

All three stores maintain large and well-assorted inventories with which to serve Maryland, Delaware, and portions of Virginia and Pennsylvania. The company maintains 24-hour service.

In addition to Roche, the company's executives include George E. Hull, vice president; Arthur G. Foard, secretary; and William G. Thomas, sales manager.



MODERN FACILITIES offered by Roche & Hull, Inc. are typified by the well-kept sales room in the company's headquarters. In the atmosphere of a retail store, customers can order a full line of refrigeration, air-conditioning and heating equipment and parts.

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Don't remove scale the hard (and dangerous) way...



USE CALGON® SCALE REMOVER—SAFE, FAST, EASY-TO-USE

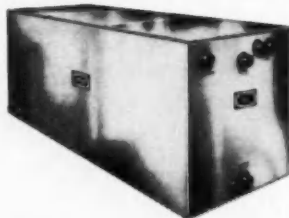
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**DEPENDABLE
AIR CONDITIONING**



Circle No. 46 on Reader Service Card

USEFUL Literature

A NEW LINE of Herman Nelson multi-zone air-conditioning units is reviewed in Bulletin No. 870 published by American Air Filter Co. Nominal capacity table indicates basic unit cooling and heating capacities at conventional operating conditions. The values can be modified, according to the company, for variations in refrigerant temperature, entering air temperature, steam pressure, and water temperature.

Circle No. 103 on Reader Service Card

SUN CONTROL DEVICES are described in a catalog (SC-957-A) released by Construction Specialties, Inc. Lists several types of sun controls with suggested applications and specifications. Line drawings show the details and give dimensions for each application.

Circle No. 104 on Reader Service Card

A COMPLETE LINE of 1959 residential heating and cooling products and commercial air-conditioners is described in literature offered by York Corp., Subsidiary of Borg-Warner Corp. Separate folders list packaged and remote air-conditioners, heat pumps, gas fired furnaces, year-round systems, and three lines of room air-conditioners. Colorfully illustrated, they describe sales features and advantages of each line and give roughing-in dimensions and specifications. Year-round systems are described in Form 59-2004, heat pumps in 59-1090, furnaces in 59-1091, room air-conditioners, Rac 59-1093, Rac 59-1095, and Rac 59-1094. Packaged air-conditioners are shown in Form Res 59-1088, remote air-conditioners in 59-1089, and commercial air-conditioners in Com 59-2025.

Circle No. 105 on Reader Service Card

AN ENGINEERING MANUAL covering air cooled condensers has been published by Larkin Coils Inc. It covers selection, installation, operation and maintenance of the company's "Zephyr-con" condenser. A separate chapter is devoted to the use of the unit for heating and ventilating.

Circle No. 106 on Reader Service Card

TEST EQUIPMENT is the subject of Brochure 2060 published by Simpson Electric Co. The brochure covers the company's complete line of test equipment for air-conditioning and heating. Includes descriptions and prices of volt-ohmmeters, vacuum tube volt-ohmmeters, and microtesters.

Circle No. 107 on Reader Service Card

LATEST ENGINEERING DATA on capacitors is furnished in engineering bulletins released by Sprague Electric Co. Bulletin 4500 includes general data on drawn-case capacitors. Other bulletins describe drawn-case oval, rectangular, and cylindrical capacitors. Each bulletin lists applications and engineering specifications.

Circle No. 108 on Reader Service Card

PERFORMANCE DATA is given in illustrated Bulletin MS-1 which describes molecular sieve filter-driers made by Remco, Inc. Along with facts about dimensions, there is a table on pressure drops and drying capacity. The latter information is offered in both pounds of refrigerant and drops of water for varying moisture concentrations and liquid line temperatures.

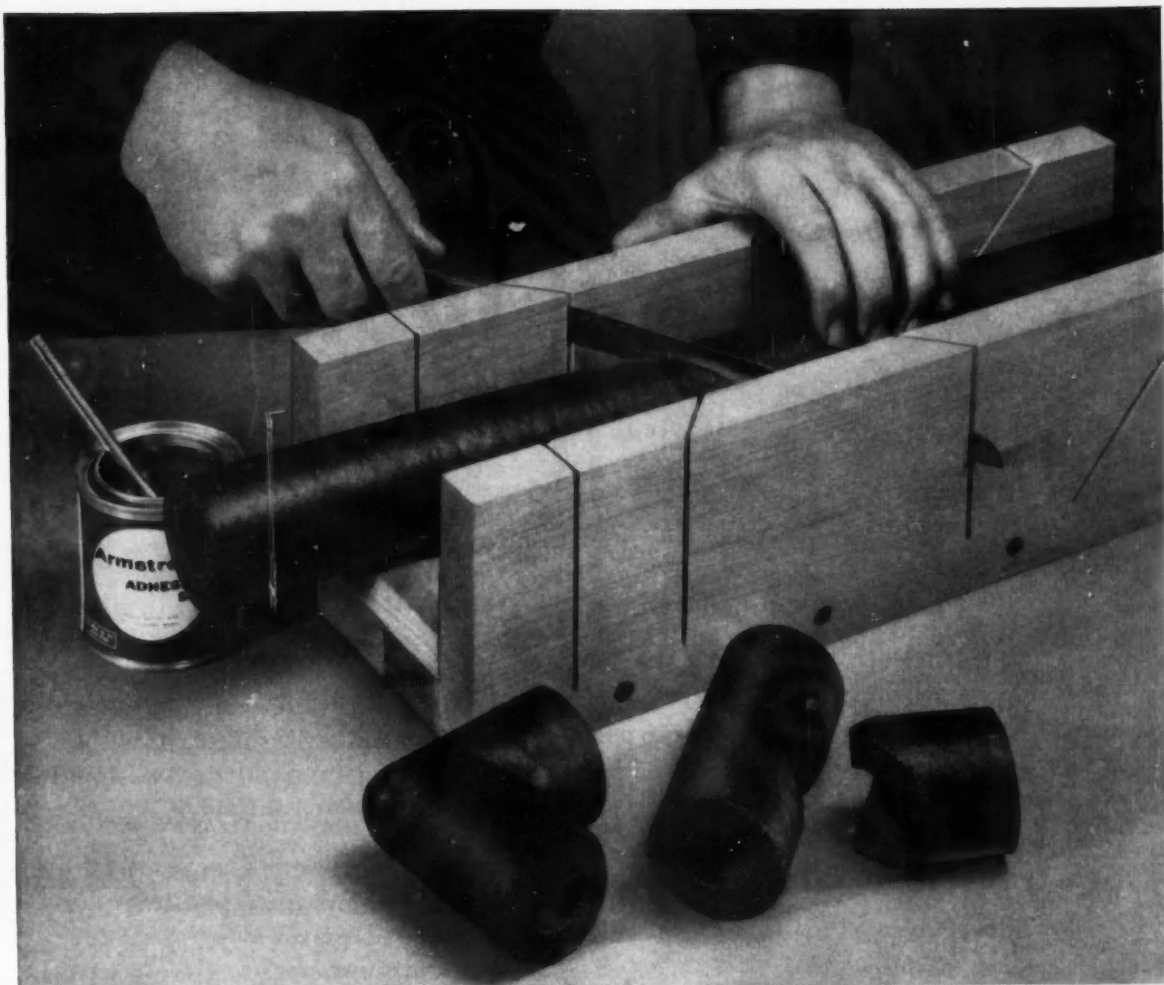
Circle No. 109 on Reader Service Card

LP GAS APPLIANCES are described in a folder (F-1165) by Linde Co., Div. of Union Carbide Corp. Includes illustrations, features and characteristics of the company's "Prest-O-Lite" gas torch stems, torch handles, pressure regulators, melting furnace, fitted hose assemblies, friction lighters, and cylinder to hose adapter.

Circle No. 110 on Reader Service Card

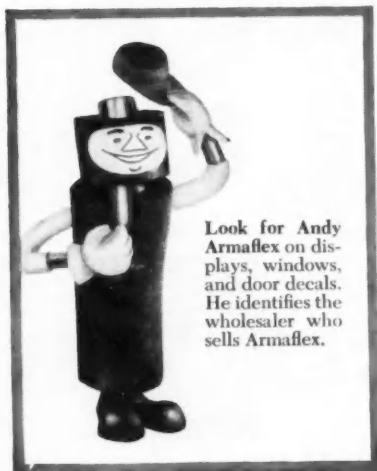
(More Useful Literature on page 85)

REFRIGERATION & AIR-CONDITIONING



You need only a miter box, 520 Adhesive, and a sharp knife to fabricate fitting covers fast and easily with Armaflex.

Insulate fittings 50% faster with Armstrong Armaflex Pipe Covering



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For full information on this remarkable pipe covering including chart of recommended thicknesses and complete application instructions, write today to Armstrong Cork Company, 2201 Rumford Avenue, Lancaster, Penna.

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Circle No. 48 on Reader Service Card

REFRIGERATION & AIR-CONDITIONING

USEFUL LITERATURE

Continued from page 82

REPRINTS OF AN ADDRESS on evaporative condensers given by D. D. Wile, vice president, chief engineer of Recold Corp., are now available from that company. The address was presented before the symposium on condensing methods at the semi-annual meeting of American Society of Heating and Air Conditioning Engineers. Included are comparisons of draw-through versus blow-through evaporative condensers; effective methods of bleed; analysis of test data on performance; desuperheating coils; system performance and multiple-circuit condensers.

Circle No. 111 on Reader Service Card

ENGINEERING INFORMATION about unit coolers is presented by Drayer-Hanson, Div. of National-U.S. Radiator Corp. The engineering data sheet (FAWD, Supp. June, '58) describes large sizes of water unit coolers for water defrost ammonia, above or below 34 F temperature.

Circle No. 112 on Reader Service Card

COMPLETE REFRIGERATION CYCLE of centrifugal compressors is given in a 28-page bulletin (1100-8148) published by Worthington Corp. Includes information about features and specifications for evaporator and condenser equipment, instruments and safety controls, capacity control, purge systems, drives and auxiliary equipment. Also lists features of the compressor units.

Circle No. 113 on Reader Service Card

HOW TUBING IS MADE is described in a folder (6891 CB) released by Wolverine Tube, Div. of Calumet & Hecla, Inc. Illustrates complete processing of raw material through all stages of production. Charts give physical and chemical characteristics of aluminum and copper alloys.

Circle No. 114 on Reader Service Card

COLD STORAGE ENCLOSURES made possible by the physical characteristics of "Foamglas" are pictured in a 12-page booklet (FL-104). Prepared by Pittsburgh Corning Corp., it includes photographs and brief descriptions of several new and unusual types of cold storage enclosures.

Circle No. 115 on Reader Service Card

VOLUME ICE STORAGE for peak load requirements is discussed in Brochure SBB-8 released by Scotsman, Queen Products Div., King-Seeley Corp. Sales features for 13 models with capacities ranging from 500 to 1500 lbs. are listed. Also included are the specifications and dimensions.

Circle No. 116 on Reader Service Card

YEAR-ROUND COMFORT with dehumidification, cooling and heating, is the subject of Booklet 1720 published by Ranco Inc. Colorful illustrations show refrigerant flow during various cycles of room air-conditioners. Engineering data section describes components and their functions.

Circle No. 117 on Reader Service Card

COOLING TOWERS with adjustable capacity are presented in Bulletin 206 by Baltimore Aircoil Co., Inc. The 8-page brochure includes photographs of the towers and component parts, dimensional drawings, selection charts, and details of construction. Also explains how capacity can be adjusted over a range of varying spray pressure without any changes to the tower.

Circle No. 118 on Reader Service Card

CONDENSED VERSION of its usual bulky valve catalog has been published by Ohio Injector Co. The catalog's 28 pages cover 95% of the company's industrial valve line. Listed for the first time is a section on bronze brazed joint valves as well as the company's corrosion resistant nickel-iron line. Also included is a key to common abbreviations.

Circle No. 119 on Reader Service Card

(More Useful Literature on Page 106)

ROOM BY ROOM D-H FAN-COIL

"SPOTAIRE"

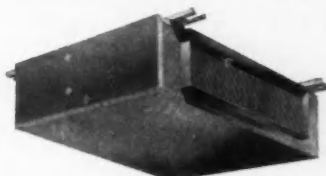
FILTER UNITS FOR NEW OR

DRAYER

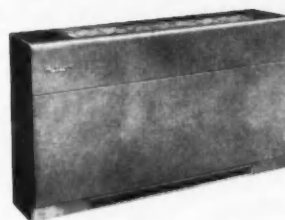
OLD CONSTRUCTION ARE

HANSON

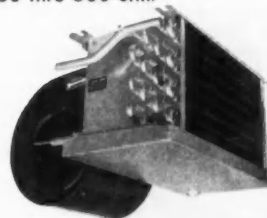
TRULY QUIET BEYOND BELIEF!



LRC's... basic unit, concealed or deluxe cabinet
(200 thru 600 cfm)



VRC's... concealed or deluxe consoles
(200 thru 600 cfm)



HRC's... three suspended types (300 thru 1750 cfm)



NEED LITERATURE?

drayer-hanson
DIVISION - NATIONAL U. S. RADIATOR CORP.

3301 MEDFORD STREET
LOS ANGELES 63, CALIFORNIA
CABLE: CLICONI LOS ANGELES

Circle No. 49 on Reader Service Card

NEW Products

Automatic Ice Makers

Product: Line of automatic ice makers.

Manufacturer: York Corp., Subsidiary of Borg-Warner Corp., York, Pa.

Features: Three models feature selector dial which permits user to select any one of three types of ice. By changing the dial, machine will produce "King Size," "Icelets," or "Thinice." Shapes are crescents or



thin wafers. When storage bin is full the machine stops freezing. As soon as ice is removed from bin, the machine turns itself on. Machines will produce 200, 225, or 450 lbs. of ice per day. Smallest model is air-cooled, two larger models are water cooled. Six other ice makers with maximum capacities from 300 to 8000 lbs. of ice per day produce only ice flakes. Circle No. 137 on Reader Service Card

Welding Fittings

Product: "Husky" steel tube welding fittings.

Manufacturer: Nibco, Inc., Elkhart, Ind.

Features: Designed for normal (150 lb.) installations. Available in straight and reducing tees, 45 and 90° elbows, and concentric reducers, 2 thru 6". Costs are competitive with threaded installations. Made from seamless carbon steel tube, which is



the same material as the pipes they are intended to join. Roughing in dimensions from center to end are same as nominal size of the fitting. Suitable to any system where contractor wants to use welded connections. Offers the advantage of metallic bond at the joints.

Circle No. 138 on Reader Service Card

Polystyrene Insulation

Product: "J-Foam" expanded polystyrene insulation.

Manufacturer: Johns-Manville Sales Corp., New York, N. Y.

Features: Designed for insulating cold storage rooms and marine applications where buoyancy or extreme lightness is a factor. Thermal conductivity is only .23 at 10 F; .25 at 40 F; and .27 at 70 F. Cubic foot weighs only 1 lb. Not brittle, recovers quickly when pressed. Will not rot, mould, or attract vermin or termites. Can be used for ceilings, or floors. Concrete can be poured directly over it.

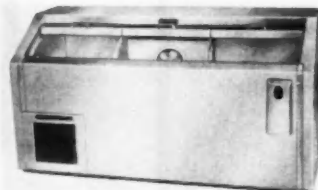
Circle No. 139 on Reader Service Card

Beverage Coolers

Product: Line of self-contained and remote beverage coolers.

Manufacturer: Foster Refrigerator Corp., Hudson, N. Y.

Features: Slanted front makes beverages in the rear more acces-



sible. Available with automatic defrost blower coil or ice maker shelves. Capacities range from 288 12-oz. bottles, to 1036 12-oz. bottles. Accessories include water faucets, legs, 4 or 6" casters, and formica work tops.

Circle No. 140 on Reader Service Card

Flexible Duct Liner

Product: "Fiberglas" mat-faced flexible duct liner.

Manufacturer: Owens-Corning Fiberglas Corp., Toledo Ohio.

Features: For internal application on rectangular and round, cold and hot air-conditioning metal ducts. Has low resistance to moving air. Low friction surface is obtained with smooth glass mat face bonded to the insulation. Can be used at air velocities up to 4000 fpm. Low ther-

mal conductivity assures high insulating efficiency. Noise reduction coefficient of .70 to .80 in 1" thickness. Fireproof, manufactured in 1/2 and 1" thicknesses, in widths of 24, 36, and 48", and roll lengths of 100' in 1/2" thicknesses, and 50' in 1" thicknesses.

Circle No. 141 on Reader Service Card

Wall Furnaces

Product: Oil and gas wall furnaces.

Manufacturer: Perfection Industries, Div. of Hupp Corp., Cleveland, Ohio.

Features: Styled for installation in any room. No ductwork required. Vertical directional louvers can be



positioned to direct warm air. Registers can be used to direct air into other rooms. Oil-fired furnace is rated at 61,000 Btu. and gas-fired at 75,000 Btu. No clearance is required between casing and shielded studs. Overall dimensions are 52" high, 23" wide, 26" deep. Factory assembled and wired. Front panels swing open for service.

Circle No. 142 on Reader Service Card

Roof Ventilators

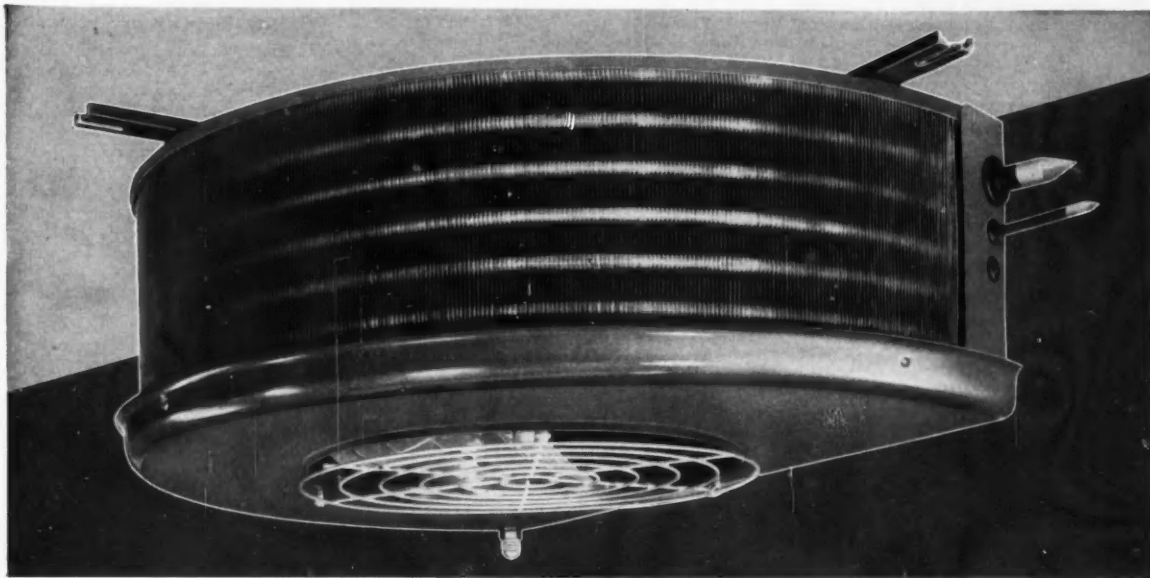
Product: Low-speed centrifugal type roof ventilators (Model CR).

Manufacturer: American Blower, Div. of American-Standard, Detroit, Mich.

Features: Complete line includes 13 basic ventilator sizes with various motor and drive combinations. Sizes are sound-rated to suit specific building requirements and provide multiple selection of quietness ratings and capacities. Ventilator wheel with non-overloading power characteristics assures quiet and efficient performance. Corrosion



The Space-Saving **LARKIN** Half-Turret Humi-Temp Balances Temperature and Humidity



Larkin Half-Turret Humi-Temps are quality engineered to control temperature and humidity in applications above 35°F. Units mount flush to cooler wall and ceiling permitting maximum storage space.

Scientifically designed air diffuser assures uniform distribution of air, 100% usage of coil surface, more effective leaving air. Lip on drip pan

forces air up and out and prevents cold air from re-entering the evaporator.

It will pay you to investigate the advantages of the Larkin Half-Turret Humi-Temp—another quality refrigeration product with traditionally fine engineering and workmanship.

See your wholesaler or write for Bulletin 1049B.

Features That Sell

- Built-in heat exchanger
- Original, patented Larkin Cross-Fin Coil with staggered electro-tinned copper tubing and aluminum fins
- Light-weight, rust-proof aluminum case finished in Larkin Blue or gleaming white
- Permanently lubricated motors, resilient mounted, with thermal overload protection
- Hinged drain pan for easy access to coil
- Airplane-type, vibration-proof fastenings
- Heavy die-stamped mounting brackets, slotted for easy mounting
- Fully insulated drip pan

BASIC RATINGS

Model	Capacity Rating Btu/hr @ 10° TD F	Total Surf. Area	Cfm
HT-25	2500	74	500
HT-35	3500	85	700
HT-45	4500	107	900
HT-54	5400	154	880
HT-68	6800	189	1120
HT-87	8700	228	1400
HT-106	10600	296	1850



**LARKIN TURRET HUMI-TEMP
ALSO AVAILABLE**



LARKIN COILS, INC.
519 MEMORIAL DRIVE, S.E., ATLANTA, GEORGIA

Circle No. 50 on Reader Service Card

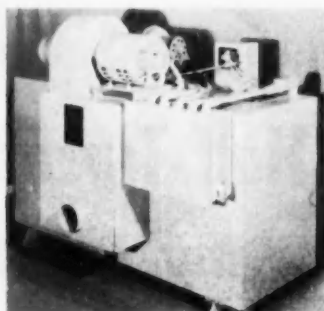
resistant hoods can be made of aluminum or zinc-coated steel. Weather band prevents entrance of snow or rain. Capacities range from 1120 to 34,440 cfm at free delivery, to 26,540 cfm at 1" w.g. static pressure. Circle No. 143 on Reader Service Card

Dehumidifier

Product: Small commercial, industrial dehumidifier (Model A12).

Manufacturer: Universal Dynamics Corp., Arlington, Va.

Features: Capable of air capacities up to 70 cfm. Dual tower absorption system makes possible



continuous drying. Will remove as much as 30 lbs. of water vapor every

24 hours. Can be used for humidity control in unheated spaces or low temperature installations as well as standard applications. Available with humidistat controls for use in room, or with constant humidity regulator for maintaining close tolerances in a cabinet, oven or stream of air. Can be installed either inside or outside space to be controlled. Completely automatic.

Circle No. 144 on Reader Service Card

Air Filter Cleaner

Product: "DAX" cleaning-adhesive solution, and detergent-adhesive system (Type X) for electronic air cleaners.

Manufacturer: Electro-air Cleaner Company, Inc., Pittsburgh, Pennsylvania.

Features: Designed to remove collected contamination on electrodes and plates of collecting cells. Applicator system is supplied as a one-operation package, available for

CORNELL-DUBILIER Motor Capacitors

Protect Your
Reputation

Only the right motor starting or running capacitor can guarantee you a dependable repair job. Only the *right* capacitor can assure maximum torque. For your own protection, use dependable C-D motor capacitors... the capacitors designed for the job. There's a C-D capacitor for every known motor starting and run-

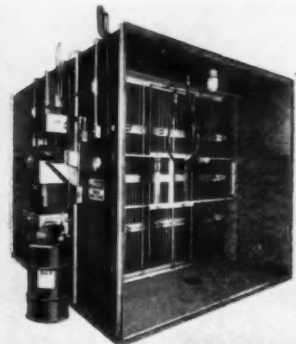
ning application. They're "preferred" by motor manufacturers and repairmen alike. Your local C-D Distributor carries a complete stock for immediate delivery. And you can select the right type for your needs from Catalog XTR-MOT. For your free copy, write Cornell-Dubilier Elec. Corp., South Plainfield, N. J.



CORNELL-DUBILIER CAPACITORS

Old Hands at Dependability

Circle No. 51 on Reader Service Card



electronic air cleaners already installed as well as with new units. Can be used with vertical traveling washing systems or horizontal fixed washing systems. Pure water flushes off accumulated build-up of dirt. Detergent-adhesive solution pumped into the water forms soapy emulsion and acts as grease-dissolving detergent. Washing cycle is completed while solution is being injected into wash water. Slightly tacky surface left on collecting plates and electrodes serves as adhesive to hold dirt and facilitate next washing.

Circle No. 145 on Reader Service Card

Insulation Adhesives

Product: "Sure-Stik" insulation adhesives (IC 201, 210, 220).

Manufacturer: Insul-Cooustic Corp., Maspeth, N. Y.

Features: For shop or field application of fibrous insulation to metal surfaces, adhering vapor barrier facings to insulations, sealing lapped edges of vapor barrier, sealing exposed edges of insulation inside air handling ducts where inner surface has been plastic-lined to reduce fiber erosion. Adhesives remain tacky for periods up to two hours permitting

TURN

TYPHOON



Flexibility of Typhoon units proves itself once again in this recent installation in a new super market. Four ceiling mounted air handling units totaling 40 tons were suspended from the ceiling to save valuable floor space. Working with compatible air cooled condensing units mounted on the roof, these Typhoon units will provide the ultimate in cooling and heating comfort all year round.

AND HAVE THE RIGHT EQUIPMENT, AT THE RIGHT PRICE, EVERY TIME!

Now you can fill every need, solve any problem with Typhoon's exclusive residential, commercial and industrial equipment! A full range of air cooled units from 2 tons to 20 tons, both packaged and as split systems. Water cooled units from 3 tons to 75 tons. Remote air cooled condensing units to 20 tons, water cooled to 75 tons. Gas and oil fired furnaces in horizontal, vertical upflow and counterflow types. And now, Typhoon's line of compact air-to-air heat pumps will open a new era in air conditioning for you. Each and every unit with built-in Power Reserve—a combination of superior components and oversize parts that insures dependable performance above rated capacity through all weather extremes. All copper condensers in water cooled units, largest coil surfaces and rugged 11 and 14 gauge metal cabinets. Find out how Typhoon quality and flexibility can add to your reputation for getting the job done better, faster, more economically—with more profit for you.

TYPHOON
DIVISION OF HUPP CORPORATION

Typhoon Air Conditioning Company, Division of Hupp Corporation
505 Carroll Street, Brooklyn 15, New York

- ☐ Have a representative call me for an appointment.
☐ Please send full product literature.

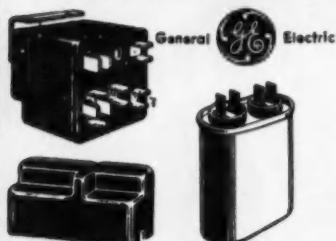
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Firm

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Refrigeration and Air Conditioning RELAYS and OIL CAPACITORS



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RELAY DIVISION
Motors & Armatures Inc.
— 31-24 14TH STREET —
LONG ISLAND CITY 6, N. Y.
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the covering of large areas at one time. One gallon covers up to 250 sq. ft. IC 201 and 210 (clear and white respectively) are solvent-thinned. IC 220 (black) is thinned with water for use in closed areas or where fire hazards exist.

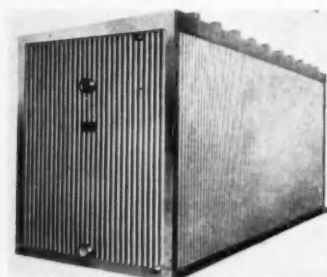
Circle No. 146 on Reader Service Card

Ice Builders

Product: Line of air agitated ice builders.

Manufacturer: Vilter Mfg. Co., Milwaukee, Wis.

Features: Available in 31 ice holding capacities ranging from 1850 to 77,000 lbs. Units from 1850 to 11,400 lbs. available for Refrigerants 12 and 22; 2000 to 77,000 lb. units available for ammonia. Refrigerant 12 or 22 units designed for direct-expansion operation; ammonia units for flooded operation. Blow-



er provides air needed to agitate water in the tank. Even build-up of ice on coils, and even melting of ice maintains constant temperatures of 33 to 34 F in outgoing ice water. 10,2000 lb. coil centers are 7½" vertical, 7½" horizontal. Coil centers for all larger models are 7" vertical 7½" horizontal. With these centers about 13 lbs. of ice can be frozen per foot of pipe.

Circle No. 147 on Reader Service Card

Air-conditioners

Product: Water cooled, self-contained air-conditioners.

Manufacturer: Typhoon Air-Conditioning Co., Div. of Hupp Corp., Brooklyn, N. Y.

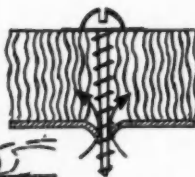
Features: Available in capacities of 3, 5, 8, 10, and 15 tons. Styled for installation in areas open to the public and in any decor. Return air grille in face of cabinet covers 8 sq.ft. of area. Can be removed for easy servicing from the front. Return air can be brought in through the back, or either side instead of through the front. Reserve power capacity permits operation at full rated capacity on hottest days; Copper tube-within-tube condensers operate on city water or cooling tower without change of circuits. 3, 5, and 8-ton units measure 37" wide, 24½" deep, 73½" high. 10 and 15-ton models are 52" wide, 33" deep,

STIC-KLIP

Do's and Don'ts For Insulation Application on Air Ducts and Apparatus

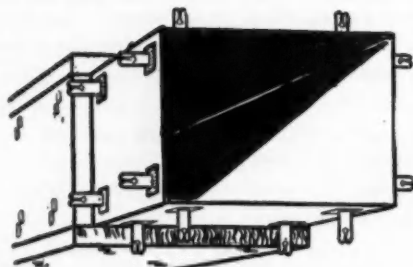
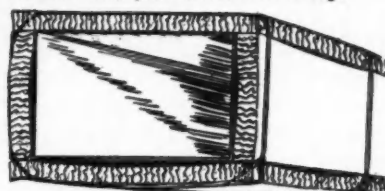
DON'T PUNCTURE DUCTS—

Puncturing Fasteners cause leaks, create turbulence, create noise, impede air flow.



DON'T DEPEND ON BANDS.

Banding breaks down corners, cuts into insulation, distorts ducts, permits insulation to sag.



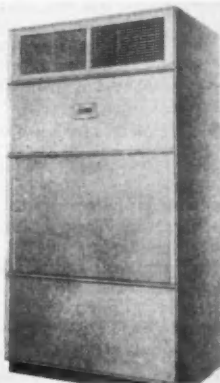
Do Use Stic-Klips

- Stic-Klips become an integral part of Air Duct.
- Stic-Klips hold insulation mechanically in compression.
- Stic-Klips hold insulation firmly and in close contact with air duct.
- Stic-Klips secure wire or lath for reinforcing secondary finishes
- Stic-Klips do a neater job and save labor.
- Stic-Klips are available for practically all types of insulations.

Stic-Klip

MANUFACTURING CO. 54 Regent Street Cambridge 40, Mass.

83" high. Capacities range from 37,000 to 182,000 Btu/hr. 15 ton unit



is available with single or double compressors. Heating coils also available.
Circle No. 148 on Reader Service Card

Gas Furnaces

Product: "Dixie Aire" line of sectional gas furnaces.

Manufacturer: Peerless Corp., Indianapolis, Ind.

Features: Large blower capacity for use with summer air-conditioning. Cabinet is finished in cop-



peritone with chrome trim. Year-round thermostat is standard on all models. Blowers are belt driven. Inputs and air deliveries, all at 0.5" external static pressure are: 60,000 Btu, 1200 cfm; 85,000 Btu, 1600 cfm; and 115,000 Btu, 2000 cfm.
Circle No. 149 on Reader Service Card

Automatic Ice Vendor

Product: "Serv-ette" line of automatic ice vendors.

Manufacturer: Hilson Inc., Newport, Ky.

Features: Vending capacities from 15 to 48 bags of ice, and storage facilities from 40 to 175 bags. Plywood housings measure from 4 x 8 x 6' to 8 x 10 x 8'. Finished in bright orange with black lettering. Refrigeration systems are automatic hot gas defrost. Additional mecha-

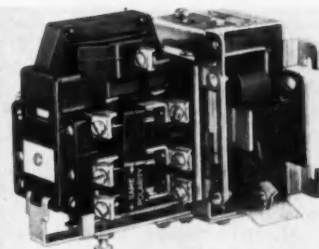
nisms can be installed in housing to increase vending capacities. Larger size housings also available. Standard equipment includes empty light. Slug rejecting type coin slides can be supplied in varying denominations. Coin box is of heavy steel.
Circle No. 150 on Reader Service Card

Control Relays

Product: Line of mechanically held control relays (Type D).

Manufacturer: Square D Co., Milwaukee, Wis.

Features: Offered as complete factory assembled units, or as elec-



trically held relays and mechanically held attachments. Rated at 10 amps, 600 volts. Eliminates the need for mounting mechanically held relays separately. Electrically and me-

Whatever type of insulation is specified on your job...



Laykold Insulation Adhesive has been the "standard" of the industry for more than 20 years. It is approved and used by a majority of the leading insulation manufacturers and contractors in the industry.

Laykold Insulation Adhesive is a cold-applied, asphalt-base material of smooth, buttery consistency that quickly sets to a tacky film. It is easier and faster to use. Applied by brush or spray, you get superior performance on every job, from vapor barrier construction to placement of insulating materials on walls, floors and ceilings.

Call the Laykold Engineer in our nearest office for full information on Laykold Insulation Adhesive.



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BITUMULS® Emulsified Asphalts • CHEVRON® Paving Asphalts • LAYKOLD® Asphalt Specialties

Circle No. 55 on Reader Service Card

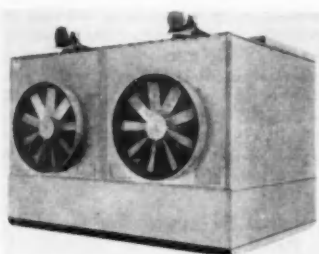
chanically held relays can be mounted on control panel in proper sequence. Available in a variety of units up to 10 contacts.
Circle No. 151 on Reader Service Card

Cooling Towers

Product: "Aquatower" line of cooling towers.

Manufacturer: Marley Co., Kansas City, Mo.

Features: Suited for industrial process water cooling applications in the 250 to 400 gpm range. New two-fan units extend capacity of the entire line to 120 tons. Divided hot



water basin and dual cooling chambers mounted on same cold water collecting basin. Permits single-cell operation and close control of cold

water temperatures. Factory assembled, ready for installation. Designed with heavy gauge, hot dip galvanized casings and basins, industrial type, heavy duty mechanical equipment, closely packed filling and a full complement of cold water basin fixtures and fittings.

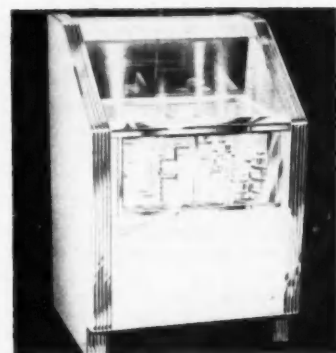
Circle No. 152 on Reader Service Card

Ice Cream Merchandiser

Product: Low temperature ice cream merchandiser.

Manufacturer: Coldin Cabinet Co., Inc., New York, N. Y.

Features: Offered for the theatre trade with which to sell ice cream novelties, and to candy manufactur-



ers for merchandising frozen candies and other low temperature products. Equipped with rubber casters for mobility. Available in colors. Can be converted to self-service by removing front glass. Measures 48" high, 30" wide, 26 1/2" deep.

Circle No. 153 on Reader Service Card



Now check superheat ...EASIER...FASTER...BETTER

Now comes a revolutionary development in superheat testing. The kit illustrated here gives you the easier, faster, and above all the more accurate superheat readings you need for that all-important adjusting and setting of the expansion valve.

All the difficulties of testing with glass tube thermometers—positioning, reading, costly breakage—are wiped out. The small bulbs of these distant reading dial thermometers are easily attached exactly where they should be. The distant reading feature permits placing the dials where they can be readily seen and compared. The widely spaced one-degree markings in the testing zone assure far more accurate reading than is possible with the closely-spaced markings of glass tube thermometers.

Note the many features described opposite—particularly the method of insulating against ambient temperature... which assures more accurate readings... better results.

At their moderate price you can own these long-lived "Super-heat" Thermometers at a fraction of the cost of using the breakable, short-lived kind!

Write for facts or See Your Wholesaler

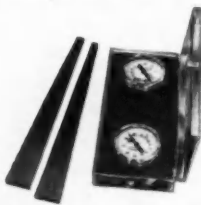
MARSH INSTRUMENT CO. Sole Affiliates of Jas. P. Marsh Corporation
Dept. P Skokie, Ill.

Marsh Instrument & Valve Co. (Canada) Ltd., 8407 103rd Street, Edmonton
Alberta • Export Dept., 3501 Howard St., Skokie, Ill.

MARSH Refrigeration Instruments

Circle No. 56 on Reader Service Card

The "Super-heat" testing kit contains two identical, 2-inch dial-size thermometers (one for evaporator inlet and one for outlet) in attractive, highly polished brass cases. Dials are graduated -40° to +65° F. Widely spaced one-degree calibrations in testing zone are guaranteed accurate within one marking plus or minus. (Glass tube thermometers have crowded markings.) Each thermometer has a 12-inch capillary tubing. Bulbs are small for use in tight quarters. Kit contains two non-absorbent insulating wrappers for easy attachment of bulbs to evaporator tubing... also to insulate bulbs from ambient temperature. (Field studies have shown that for the highly accurate readings essential to superheat testing, ambient temperature must be insulated from thermometer bulbs.)



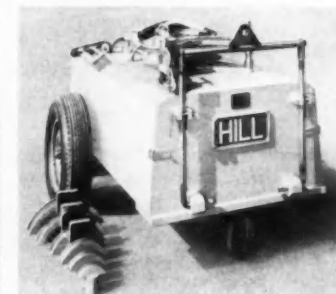
Thermometers and "wrappers" are neatly held in durable, transparent plastic box with convenient hinged cover, measures only 3" x 8" x 1 1/4".

Pipe Fabricator

Product: Portable hydraulic pipe bending and fabricating machine.

Manufacturer: Walter P. Hill, Inc., Detroit, Mich.

Features: Trailer-type pneumatic tired wheels and castored front wheel permits moving the machine by hand or hauling it over the high-



way. Will bend electrical conduit pipe up to 2 1/2" dia., solid bars up to 1 1/2" dia., and angle forms. Adjustable bends with radii five times pipe diameter are produced on the

OUTDOOR



Engineering the temperature... AROUND THE WORLD...

Bangkok, Thailand. In oppressive heat and sweltering humidity the luxurious Erawan Hotel is completely cooled by Recold air conditioning equipment. Horizontal and vertical air handling units cool the public rooms. Small RE room units, individually controlled, cool and dehumidify each of the 206 apartments and bedrooms.



RECOLD CORPORATION

7250 East Slauson Avenue, Los Angeles 22, California

Circle No. 57 on Reader Service Card



UNI-CREST

PIPE COVERING

a new, economical, low temperature insulation

Uni-Crest, pipe covering, is an excellent low temperature insulating material, and is inexpensive to install and maintain.

Uni-Crest's low thermal conductivity (K factor), plus its high resistance to water and water vapor—are some of its prime qualities. It will not rot, mildew, or support fungus growth.

Extremely lightweight, with a smooth,

tough white surface, Uni-Crest is non-dusting, non-flaking, and easily cut and handled on the job. And Uni-Crest is inexpensive, too.

For the address of the office nearest you, plus additional information about Uni-Crest pipe covering and an actual sample, please write to the address below.

UNI-CREST

DIVISION UNITED CORK COMPANIES
Since 1907

7 Central Avenue, Kearny, New Jersey



Uni-Crest engineering offices or approved distributors are located in key cities coast to coast.

Circle No. 58 on Reader Service Card

REFRIGERATION & AIR-CONDITIONING

machine. Bending dies for $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, and $2\frac{1}{2}$ " dia. pipe are furnished, plus standard pipe vise mounted on work surface. Hydraulic pump is driven by 220/240-volt, 5-hp motor with plug attachment or optional 5-hp gasoline engine. Push-button operation provides positive control. Measures 3' wide, 5' long, and $3\frac{1}{2}$ ' high. Limit switch permits machine to make duplicate bends. Extra tools for bending hydraulic line of standard tube sizes also available.

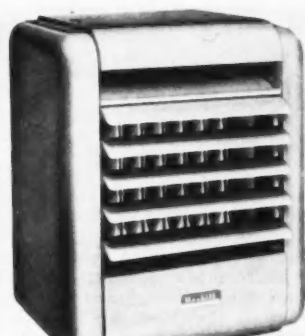
Circle No. 154 on Reader Service Card

Gas Unit Heaters

Product: Line of gas fired unit heaters (Series K).

Manufacturer: John J. Nesbitt, Inc., Philadelphia, Pa.

Features: Line includes 10 models which range from 25,000 to 250,000 Btu/hr input. Units range from 66 to 310 lbs. in weight, and from 18 to 36" high. Approved for all types of gas. Controls are located



at the rear, and bottom pans are hinged to provide access for servicing burners and heat exchangers. Motors are direct-connected to propeller fans.

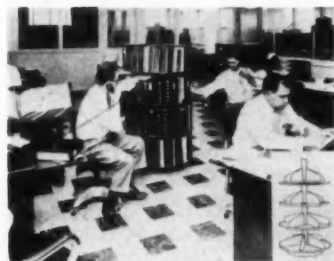
Circle No. 155 on Reader Service Card

Catalog Storage Rack

Product: Circular rotating catalog storage rack.

Manufacturer: Frick-Gallagher Mfg. Co., Wellston, Ohio.

Features: Can be used with equal advantage by several people. Allows maximum storage in minimum space. Each of four rotating sections consists of a hub and bot-



tom disc, flanged and beaded for stiffness, and five permanent dividers. The five compartments measure 21" wide at the face, 15" deep, 7" high. Overall height is $65\frac{1}{2}$ ". Available in gray or green baked-on enamel.

Circle No. 156 on Reader Service Card

Truck Refrigeration

Product: Hydraulic drive 3-hp cargo cooler (Models H-30, HE-30).

Manufacturer: Hunter Manufacturing Co., Solon, Ohio.



Features: Maintains thermostatically controlled temperatures down to zero degrees in 10 to 14' trucks with insulation 4" thick or more, and medium temperatures in 32 to 50 F range, in trucks up to 18' long with insulation 3" thick or more. Inside body dimensions are 17" high, 32" wide, 21" deep. Model H-30 weighs 320 lbs., HE-30, equipped with 3-hp electric standby, 220/240 volt, 3 phase motor is 395 lbs. Self-contained, factory-charged units can be mounted in opening in front wall of truck body above the cab. Hydraulic pump with kit for power take-off or engine mounting, as required, thermometer and flexible hydraulic lines are shipped with each unit. Reverse-cycle automatic defrost is optional accessory equipment.

Circle No. 157 on Reader Service Card

Temperature Control

Product: Remote bulb temperature control (Type E27A).

Manufacturer: United Electric Controls Co., Watertown, Mass.

Features: Consists of bulb, capillary tube, bellows, and control head. When heat is applied to bulb, the liquid expands and causes uniformly linear motion of the bellows plunger. Plunger operates the switches when temperature reaches established points. Spring-loaded bellows ensures quick response to changes in temperatures. Settings are made by single-turn knob and pointer. Available with range spans of 100 F or 200 F, between limits of -150 F and 650 F, and with on-off differentials of 1 and 2 F. Control head can be surface mounted in any position. Variety of bulb styles and capillary tube lengths available. Contains two switches. May be used in place of two separate single-switch controls in some applications.

Circle No. 158 on Reader Service Card

Open Type Motors

Product: "Super-Seal" open type motors.

Manufacturer: Allis-Chalmers, Milwaukee 1, Wis.

Features: Suitable for many applications previously requiring enclosed designs. Available in all integral horsepower frames. Unaffected by moisture, dust, dirt, oils, acids, and alkalies. Motors are said to have a 1.15 service factor which frequently permits using a smaller motor size.

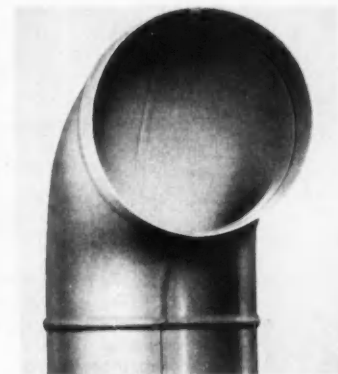
Circle No. 159 on Reader Service Card

Two-Piece 90° Elbow

Product: "Laminair-Flo" two piece 90° elbow.

Manufacturer: United Sheet Metal Co., Inc., Columbus, Ohio.

Features: Two die-stamped sections of 20 gage galvanized steel are welded together. Produced in uniform-size diameters of 3, 4, 5, 6, 7,



and 8". Reduces friction loss and static pressure in high velocity air movement.

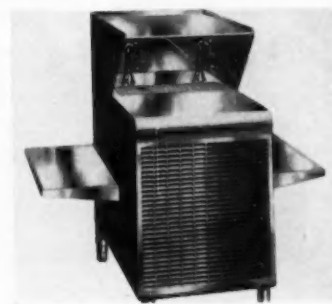
Circle No. 160 on Reader Service Card

Water Station

Product: Refrigerated water service station.

Manufacturer: Bastian-Blessing Co., Chicago, Ill.

Features: Stainless steel cabinet, measuring only 2' wide, for use where customers fill their own water glasses. Below the two water arms is a drip plate, and above them a



glass tray rack. Side racks are optional. Front of cabinet is louvered ventilating panel. Has pull-out condensing unit. Capacity of 15 gallons per hour, chilling water from 70 to 40 F.
Circle No. 161 on Reader Service Card

Filter Gage

Product: Filter gage for forced air furnaces or air-conditioners.

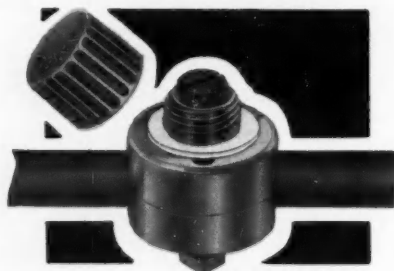
Manufacturer: F. W. Dwyer Mfg. Co., Michigan City, Ind.

Features: Actuated by differential or drop between atmospheric and blower compartment pressures.



Indicates gradual clogging of filter as well as exact time when change

Custom ENGINEERED FOR YOUR INDIVIDUAL NEEDS

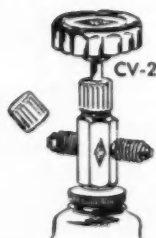
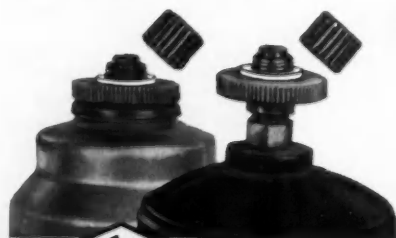


U.S. Pat. No. 2,827,913

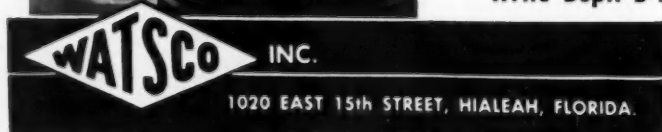
WATSCO LINE TAP VALVES are easily installed on tubing to provide a permanent port for testing, charging or discharging. Available in 6 sizes ranging from $\frac{1}{8}$ " to $\frac{3}{8}$ ", each valve is custom designed to fit its respective size line without distorting the tube. Exclusive 3 point sealing makes leakage almost impossible. Operated by Watsco Control Valve CV-1 or CV-2.

CAN TAP VALVE screws on to most all packaged refrigerant containers and pierces the can seal to release refrigerant. Easily shut off and sealed with Watsco Control Valve CV-1 or CV-2. Watsco's exclusive 3 point sealing allows you to use as much refrigerant as required with confidence that the balance will not leak from the can. The Can Tap valve may be left on until all the refrigerant is used, but the control valve may be removed and used for other jobs.

CAN TAP IS A LIFETIME VALVE.
NEEDLE IS REPLACEABLE
AT NOMINAL COST.



Send for Catalog
Write Dept. B-1



Circle No. 59 on Reader Service Card

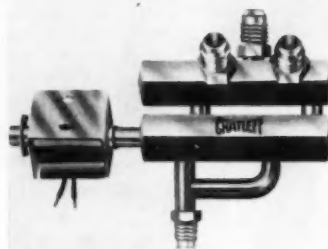
or service is necessary. Can be installed by drilling one hole in blower compartment panel. Single knob suffices for all adjustment. Available in three capacities. Attractively packaged with complete installation instructions, and clip fasteners.
Circle No. 162 on Reader Service Card

Electric Valve

Product: "Thermo-Control" hermetic electric valve for auto air-conditioners.

Manufacturer: Chatleff Valve & Mfg. Co., Austin, Tex.

Features: Wired in series with on-off switch and thermostat, provides complete control. Offers compressor unloading and temperature



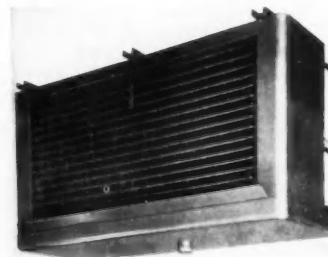
control. When valve is de-energized, system is unloaded. Maintains nominal work load of approximately 25 lbs. on compressor at road speeds to insure proper lubrication. Circulation through evaporator and condenser is prevented in off position.
Circle No. 163 on Reader Service Card

Unit Coolers

Product: "Flocold" hot gas defrost units.

Manufacturer: Drayer-Hanson, Div. National-U.S. Radiator Corp., Los Angeles, Calif.

Features: Adaptable to any type hot gas defrost system, over or under 34 F. Electrical or hot gas heated



drain pan is offered with the unit. Offered in 10 models. Fan range is 750 to 11,000 cfm. Total coil surfaces, per unit, range from 105 to 1540 sq. ft. Overall dimensions of smallest model are: 16 $\frac{5}{8}$ " high, 20" wide, 26 $\frac{3}{4}$ " long. Largest unit is

REFRIGERATION & AIR-CONDITIONING

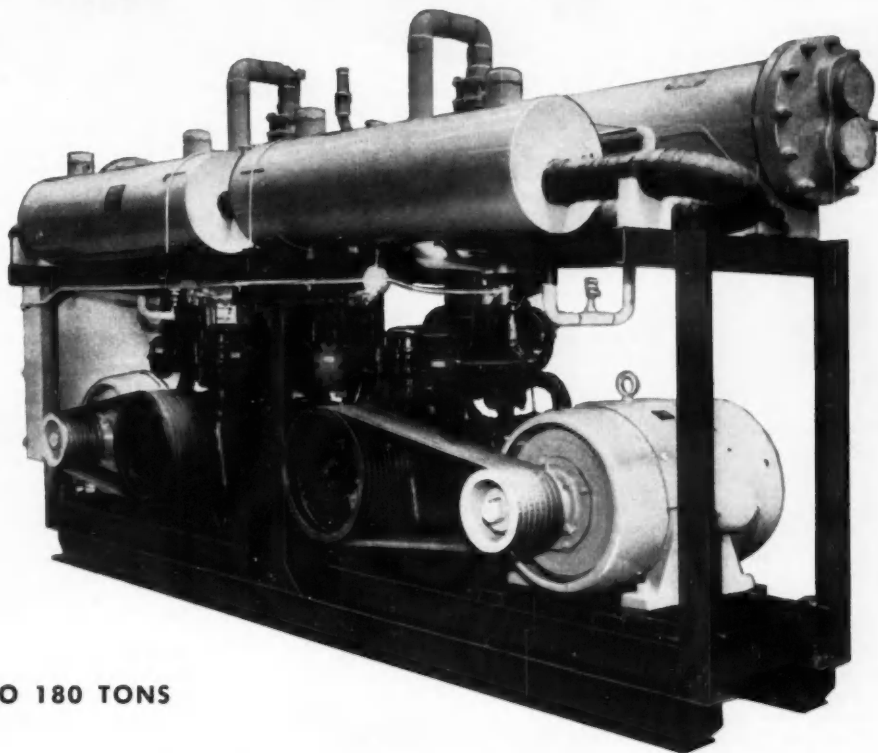
SEE

BOOTH 309 INTERNATIONAL HEATING & AIR CONDITIONING EXPOSITION

THE



PACKAGED WATER CHILLER



20 TO 180 TONS

COMPACT • AUTOMATIC • EASILY INSTALLED

A COMPLETELY ENGINEERED, PACKAGED LIQUID CHILLER . . . INCORPORATING ALL OF THE COMPONENTS IN ONE UNIT.

Each chiller is factory-assembled on a rigid steel base, balanced, and tested, ready for easy installation. Refrigeration is supplied by the famous Frick "ECLIPSE" compressor, with condenser-receiver. Machines handle either refrigerant 12 or 22. Automatic controls adjust the liquid supply and compressor capacity to assure economical operation at all times. Safety features such as oil-pressure switch, high-low pressure cut-outs, freeze-up control on chiller, and two-stage thermostat for automatic regulation of liquid and compressor, are all standard on Frick liquid chillers.

WRITE FOR FRICK BULLETINS 802 AND 804

FOR COMPLETE DATA . . . facts and figures, call your nearest Frick Branch or Distributor. Consult the Yellow Pages of your phone directory, or write direct to



Circle No. 60 on Reader Service Card

37 $\frac{5}{8}$ " high, 20" wide, 104 $\frac{3}{4}$ " long. Coil drain header has been designed so coil can be fed by refrigerant distributor on cooling cycle. Condensed refrigerant can by-pass distributor, on condensing cycle.

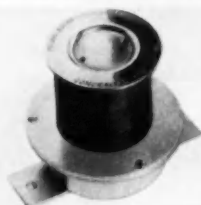
Circle No. 164 on Reader Service Card

Damper Regulator

Product: Adjustable cover damper regulator (No. 330).

Manufacturer: Young Regulator Co., Cleveland, Ohio.

Features: Used for perimeter heating and air-conditioning. Can be installed in the floor in a branch



duct near grille for accurate control of air volume in the branch duct. Brass covered plate 2 $\frac{3}{8}$ " dia. can be screwed down flush with the floor after the concrete is set and form is removed.

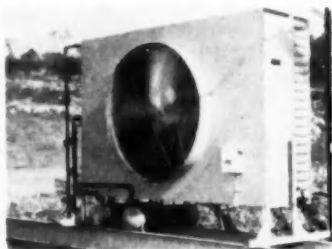
Circle No. 165 on Reader Service Card

Air-cooled Condensers

Product: Line of air-cooled condensers (Type AC).

Manufacturer: Halstead & Mitchell, Pittsburgh, Pa.

Features: Basic units available in capacities of 30, 35, 40, 45, and 50 tons. Also offered as twin units providing 60, 70, 80, 90, and 100-ton capacities. Manifolding is provided for



inter-connecting units at the job site. "Turbo-Flo" fins, with embossed patterns are said to add surface area and improve heat transfer. Wide fin spacing prevents clogging.

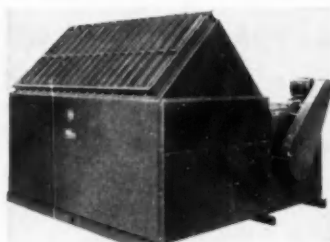
Circle No. 166 on Reader Service Card

Air-conditioners

Product: Multi-zone air-conditioners for simultaneous heating and cooling (Type MC).

Manufacturer: McQuay, Inc., Minneapolis, Minn.

Features: Designed for use where outside weather or inside require-



ments make it necessary to heat some sections of a building at the same time other sections require cooling. Will furnish either heated or cooled, filtered, dehumidified air to determined areas. Heated and cooled air can be mixed in any desired proportions. Available in 11 sizes from 1370 to 38,000 cfm. Each unit has a standard number of zone dampers available from 6 to 22. All zones are inter-connected by a single external connecting rod. Accessories include preheat steam coils, filter sections, mixing boxes, and humidifiers.

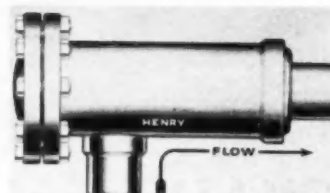
Circle No. 167 on Reader Service Card

Filter-Driers

Product: Line of cartridge type angle filter-driers.

Manufacturer: Henry Valve Co., Melrose Park, Ill.

Features: Drying and flow ca-



capacity range up to 10 tons. Available in 1 $\frac{1}{8}$ " to 2 $\frac{1}{8}$ " O.D.S. connection sizes. No by-pass required; low pressure drop. New cartridges can be installed in seconds to keep desiccant from picking up moisture from the air.

Circle No. 168 on Reader Service Card

Built-in Wall Units

Product: "Lupton" curtain wall panels with air-conditioning units built-in.

Manufacturer: Michael Flynn Mfg. Co., Philadelphia, Pa.

Features: Intended particularly for buildings such as motels, hotels,



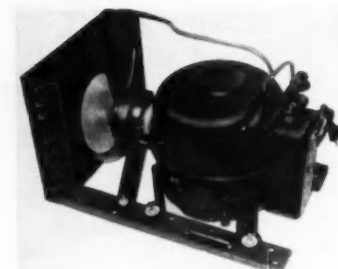
apartments, offices and similar business structures. Panels are installed like conventional curtain walls and need only an electrical connection to operate the air-conditioning unit. Same advantages of conventional curtain walls including ease of installation. Eliminates separate construction for air-conditioning. Desired temperature can be obtained in each zone or room. Units remove smoke and order through exhaust. Heavy-duty and lighter units will be available. The two types of models will be interchangeable.

Circle No. 169 on Reader Service Card

Condensing Units

Product: Condensing units (Model OCL25, OCL33).

Manufacturer: Bendix-Westinghouse Automotive Air Brake Co., Evansville, Ind.



Features: Compact units designed for small freezer and other low temperature applications. Available in $\frac{1}{4}$ and $\frac{1}{3}$ hp size for use with R-12. Constructed on rails to eliminate excess weight.

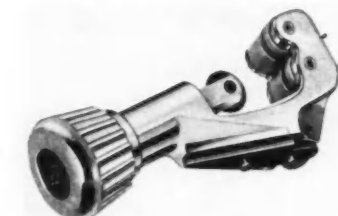
Circle No. 170 on Reader Service Card

Tube Cutter

Product: "Hi-Duty" tube cutter (Model 274-FA).

Manufacturer: Imperial Brass Mfg. Co., Chicago, Ill.

Features: Will handle 1/8 to 1-1/8" OD tubing, hard or soft

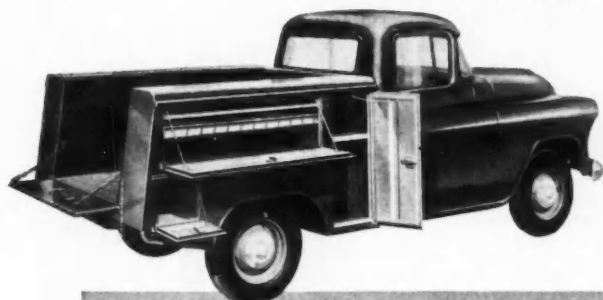


temper. Large cutting wheel is provided for faster cutting. Flare cut-off groove permits cut-off of damaged flares without waste. Includes spare cutting wheel, retractable

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Service-Master costs so much less in the long run that it's actually false economy to settle for any other make. Here's a truck body that has class . . . starting with the way it's put together and ending with the way it stays together without constant upkeep through the life of several chassis. See one, go over it carefully, get all the facts, compare and you'll know why Service-Master is your very best service body buy!

POWERS
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TWO MODELS . . . FOUR SIZES
 for 1/2, 3/4, 1 and 1 1/2 ton chassis

A standard Model SM-15 (3/4 ton) Service-Master is shown at top left. Below is the same model with a Canopy Top. All bodies are available for immediate delivery in all 48 states.



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**SEND FOR THIS
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INDUSTRIAL AIR CONDITIONING 	FOOD STORAGE 	BEVERAGE COOLING 	REFRIGERATING PERISHABLES 	FUR VAULTS

Refrigeration and air conditioning equipment for every need

More and more engineers, contractors and big name users are selecting Krack equipment for these reasons: only Krack manufactures unit coolers with automatic electric defrost that eliminate ceiling frosting . . . circuiting systems that prevent coil "frost-up" and many

other products that offer unique performance and installation advantages. In addition, Krack's accurate capacity ratings also save time and trouble . . . eliminate headaches of under-estimating equipment. *For proof . . . send coupon for case histories and Condensed Catalog*

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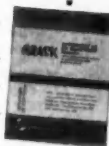
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**Smoothly Bends ANY
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• Just a twist of the wrist assures perfect, even bends . . . right-angle, any angle. U and offset—every time. Eliminate need for els. No more guesses—no kinks! Save enough time, labor and money on ONE job to pay for your Handy Bender.

See your supply house—or write for free folder today.

HOLSCLAW BROS., INC.

430 N. WILLOW ROAD — EVANSVILLE, IND.

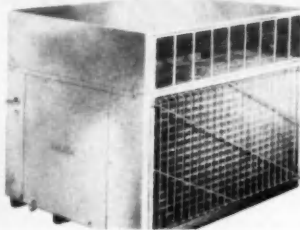
reamer, and free-wheeling ball thrust bearings for quick size adjustment. Circle No. 171 on Reader Service Card

Condensing Unit

Product: 4-ton condensing unit. (Model HSA 3-40).

Manufacturer: Lennox Industries Inc., Marshalltown, Iowa.

Features: For central residential air-conditioning systems. Gives 49,000 Btu/hr of cooling when remotely connected to 3-ton "Landmark" evaporator, and 51,000 Btu/hr with a 5-ton evaporator. Air discharge can be from top, or on same



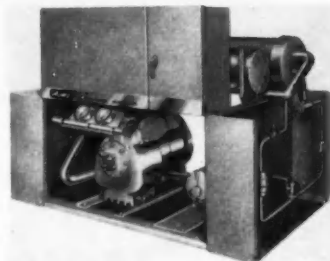
side as inlet when acoustical discharge hood is used. Can be built into a wall so that only the inlet-outlet space is exposed. Dimensions with acoustical hood are 34 1/2" high, 33-11/16" deep, 59 1/8" wide.

Circle No. 172 on Reader Service Card

Water Chillers

Product: Self-contained water chillers (Model RG).

Manufacturer: Acme Industries, Inc., Jackson, Mich.



Features: Available with either one or two complete refrigerant circuits. Systems are charged at the factory with R-22 and oil and are ready for operation as soon as they are installed. Can be used with city water by using condenser cooling medium or may be used with a cooling tower. Also furnished without water cooled condenser for use with evaporative condenser.

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**Now Solder Aluminum
with ordinary soft solders . . .**



**with new
LA-CO
Aluminum
Flux**

You can now solder aluminum as easily and effectively as any of the common metals—using ordinary soldering procedures and ordinary 40-60, 50-50, 60-40 and 95-5 solders. LA-CO Aluminum Flux makes all the difference—brings formerly difficult aluminum fabrication within the scope of the average workman. This flux is completely acid-free. Packed in 4 oz. and 1 lb. tins for shop use, larger sizes for production work.

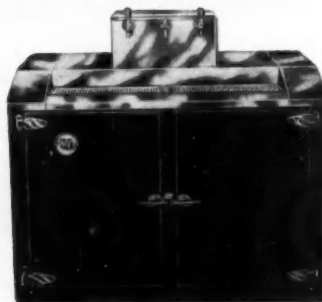
Write on company letterhead for sample; state details pertaining to your specific soldering problem.



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**FINEST
IN
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REFRIGERATED FAUCETS . . . guarantee perfect beer temperature.

NO EXCESSIVE FOAM . . . a perfect glass of beer every time.

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REFRIGERATION & AIR-CONDITIONING

APPLIED PSYCHOLOGY

Continued from page 55

the trained psychologist can do for business.

Psychology's role should be to show business how to tap the enormous potentials that lie within every human being.

When we complete a personality analysis, we label it, "An Employee Development Study." And it is literally that—an outline of what management can do to develop the employee under study.

An introduction reads: "Handled one way an employee succeeds. Handled another way he fails, or best is insufficient. Unfortunately, his usual behavior is generally more misleading than helpful in determining the best ways to handle him." The specific kind of supervision that will insure this particular employee's successful performance is then suggested.

How and why does this work? Consider the typical case of an employer with a staff of five salesmen. On the surface the salesmen may all fit the same pattern. They have more than average intelligence; they express a strong interest in sales work; they are energetic, cooperative and loyal. They are sociable, aggressive, and adventurous.

Yet, they are not producing as their employer thinks they ought to be producing. What is the trouble?

Because the men appear comfortably alike on the surface there is the danger of treating them alike. Underneath they may be motivated by entirely different needs.

Each man's outward behavior is likely to conceal something deep down that is quite different from what appears on the surface. Even the man himself may not be aware that these needs exist, and those near to him may not sense their presence.

If a psychologist were to analyze the personalities of the five salesmen, he might discover that Salesman No. 1 prefers stern and firm handling; Salesman No. 2 can't work in a situation which is not characteristically lenient; Sales-

man No. 3 requires very close and detailed direction; Salesman No. 4 resents any form of direction and control as an insult to his freedom-loving nature; Salesman No. 5 differs from the other four—and from most salesmen—in that he wants all his relationships strictly businesslike, free from sentiment and feeling.

In an ideal situation each of these men would be handled differently. Each would receive supervision tailored to his needs.

This is far from coddling the

employee. Instead, it is the surest way to get effective, productive work from every individual.

Until a robot salesman is invented, the human personality must remain the number one consideration for any company trying to build a successful selling staff.

SALES OFFICE MOVED

Beach-Russ Co., has moved its general sales office to larger quarters in the Graybar Building, New York.

Choose **BOHN** full-rated refrigeration and air conditioning units

AIR-COOLED CONDENSERS



MODEL ACS—Available in 2, 3, 5, 7½, 10 and 15 ton sizes

AIR CONDITIONING UNITS



MODEL CH—Available in 2, 3, 4, 5 and 7½ ton capacities

REFRIGERATION PRODUCTS

For Cabinets



MODEL U
for Small Applications



MODEL C for Reach-Ins



MODEL D
for Beverage Boxes

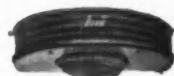


MODEL LM
for Upright Freezers



MODEL UM
for Reach-Ins and
Dough Retarders

For Walk-Ins



MODEL HR
The Original Half-Round



Unit Coolers
MODEL UC Normal Temperature
MODEL LC Low Temperature

Precision designed and performance proven

BOHN

Buy the known line... the **BOHN** line
Aluminum and Brass Corporation

Betz Division • Danville, Illinois

Circle No. 66 on Reader Service Card

ARI SEAL

Continued from page 39

manufacturer permission to use the "Certified" seal on all equipment covered by these tests. The seal can either be incorporated as part of the name-plate or attached to the unit in the form of a decal. Information on this certified equipment will be compiled by ARI in a directory which will be made available both to the trade and to the public.

To put teeth into the program, ARI has made arrangements with an independent laboratory to random test the products of all manufacturers of certified equipment. The manufacturer will be advised of the test results. If these results do not measure up to advertised claims, the manufacturer must either bring the unit into conformance or forfeit the right to use the seal.

Participating manufacturers also will be encouraged to test each other's products. If such competi-

tive tests indicate that any unit does not meet advertised capacity, ARI then will procure a unit of the same model number and have it tested by the certifying laboratory. If the laboratory tests bear out the findings of the competitive tests then the manufacturer of the unit will face the alternatives previously indicated.

This compliance program will be backed by a national publicity and promotion campaign to acquaint the trade and the public with the meaning of the seal. Much of this material will be released early this year.

What does all this mean to you in selling air-conditioning?

It means that you have at your disposal a tool you can use to assure your customers of the straight facts on equipment capacity.

You will be able to legitimately question all ratings that are not certified under this program.

You will be able to talk capacity ratings to your customers knowing that the facts you present are backed up not only by the good name of the manufacturer whose product you offer but also by the reputation of two national trade associations and the results of an independent testing laboratory.

The following 30 manufacturers have signed contracts for participation in ARI's compliance program:

Airtemp Div., Chrysler Corp.; Amana Refrigeration, Inc.; American Blower Div., American-Standard; American Furnace Co.; Arkla Air-Conditioning Corp.; Bryant Mfg. Co., Div. of Carrier Corp.; Carrier Corp.; Day & Night Div., Carrier Corp.

General Automatic Products Co.; General Electric Co.; Gibson Refrigerator Co., Div. of Hupp Corp.; Hall-Neal Furnace Co.; International Heater Co.; Lennox Industries, Inc.

Majestic Co.; Mathes Co., Div. of Glen Alden Corp.; Mueller Climatrol, Div. of Worthington Corp.; National U. S. Radiator Corp.; Payne Co., Div. of Carrier Corp.; Peerless Corp.; Perfection Industries, Div. of Hupp Corp.; Rheem Mfg. Co.; Round Oak Co. of Indiana, Inc.

A. O. Smith Corp.; Trane Co.; Typhoon Air Conditioning Co., Div. of Hupp Corp.; United States Air-Conditioning Corp.; Westinghouse Electric Corp.; Worthington Corp.; York Div., Borg-Warner Corp.



TAKE IT ON EVERY JOB

There's a chemical genie in Thawzone that works like nothing else in the world to cure and prevent trouble in refrigeration and air conditioning systems.

It eliminates freeze-ups • destroys trouble-causing moisture • helps prevent corrosion and copper plating • scavenges out oxygen • helps keep expansion valves free of sludge and rust • You avoid call backs caused by freeze-ups after servicing.



Take Thawzone on every job, use it in every installation charged with the modern fluorine refrigerants (Freon®, Genetron®, etc.) or with methyl chloride, methylene chloride or isobutane. It's economical: 1/4 oz. treats a pound of refrigerant. And it's easy to use.

See your refrigeration wholesaler today for Thawzone and the free Thawzone Service Manual.

*Reg. Trade Name: Du Pont & Allied Chemical Corp.

THAWZONE

HIGHSIDE CHEMICALS INCORPORATED
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REFRIGERATION & AIR-CONDITIONING



Install Insulation with **TUFF-BOND** Super-Strength Adhesives

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... fire-retardant adhesive for installing insulation

TUFF-BOND M-102-H

... economical duct liner adhesive

TUFF-BOND 21-C

... clear lap sealer and lap adhesive

TUFF-BOND 21-W

... white lap sealer and lap adhesive

TUFF-BOND #500

... exceptionally high-strength chemical-set adhesive with wide thermal range -100° F. to 400° F.

TUFF-BOND #1000

... high heat resistance for bedding and installing high temperature insulation

TUFF-BOND #12

... high pressure duct sealer

TUFF-BOND QUIK-SET

... neoprene-base, fast-setting adhesive. Recommended for installing metal and nylon hangers to smooth surfaces.

TUFF-BOND GENERAL PURPOSE

... all-around adhesive for installing insulation, insulation hangers, etc.

Ask for descriptive literature and prices.

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Circle No. 69 on Reader Service Card
BUSINESS • JANUARY 1959

Calendar of Industry Events

January 18-22, 1959

National Association of Home Builders
(Convention and Exposition)
Chicago, Ill.

January 26-30, 1959

American Society of Heating and Air-Conditioning Engineers
(Annual Meeting and Exposition)
Philadelphia, Pa.

May 3-6, 1959

Air-Conditioning and Refrigeration Institute
(Board and Annual Meeting)
The Homestead
Hot Springs, Va.

June 7-11, 1959

American Society of Heating and Air-Conditioning Engineers
(Semiannual Meeting)
Vancouver, B. C.

June 22-24, 1959

American Society of Refrigerating Engineers (Annual Meeting)
Lake Placid Club
Lake Placid, N. Y.

AAF SUES FARR CO. FOR PATENT INFRINGEMENT

American Air Filter Co., Inc., has filed suit in U. S. District Court for patent infringement against Farr Company, Los Angeles.

The suit is based on an invention for a method and apparatus for filtering air. The patent involved covers filters sold by American Air, under the trademarks "Roll-O-Matic" and "Roll-O-Vent", which employ a roll of compressible and expansible filtering material.

The suit asks for injunctive restraint against the manufacture and sale of infringing equipment which is being sold by Farr, as well as monetary damages for past sales.

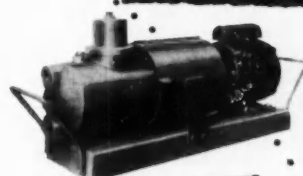
A suit under the same patent was filed against Continental Air Filters, Inc., Louisville, in January, 1958. This suit is still pending.

Servicemen Agree...

BEACH-RUSS PORTABLE VACUUM PUMPS are made with features they desire

High Performance Characteristics

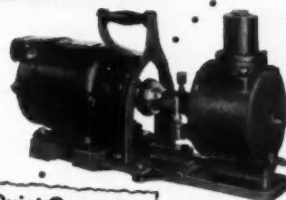
Completely Portable



Automatic Lubrication

Single- or Two-Stage

Long Life



Quiet Operation

Minimum Attention

Valves Eliminated

Beach-Russ Vacuum Pumps are also made in types and sizes for evacuation and testing of refrigeration equipment on a production basis.

BEACH-RUSS COMPANY DEPT. 56
420 LEXINGTON AVE. • NEW YORK 17, N. Y.

Send descriptive literature covering

- ☐ Model O Single-Stage Vacuum Pumps.
☐ Model A Two-Stage Pumps.

NAME.....

COMPANY.....

ADDRESS.....

CITY..... ZONE..... STATE.....

BEACH-RUSS CO.

420 LEXINGTON AVE. • NEW YORK 17, N. Y.

Circle No. 68 on Reader Service Card

SPORLAN TO DISTRIBUTE HUBBELL CONTROLS

Distribution arrangements have been completed between Hubbell Corp. and Sporlan Valve Co. making Hubbell products available through the Sporlan sales organization. This affiliation makes both lines of products now available through a single source.

Principal products added to the Sporlan line by this move are Hubbell back pressure regulating valves, combination back pressure and stop valves, and large capacity solenoid valves. These special control valves will augment Sporlan's own line of thermostatic and solenoid valves.

QUEEN PRODUCTS FILES INFRINGEMENT SUIT

Queen Products, Div. of King-Seeley Corp., has filed a supplemental complaint against Cold Corp. charging infringement on the company's patent covering "Scotsman" ice machines. The U.S. District Judge in Chicago, Ill., has enlarged the pending infringement suit to include the latest model of ice flaking machines manufactured by Cold Corp.

RSES MARKS 25TH YEAR; KLAHN NAMED PRESIDENT

Refrigeration Service Engineers Society celebrated its silver anniversary during its recent annual meeting in Columbus, Ohio. Congratulating the society on this milestone in its history, George Jones, managing director of Air-conditioning & Refrigeration Institute presented RSES with a plaque commemorating the organization's 25 years of "distinguished service".

H. T. McDermott, secretary of RSES since its inception, was showered with testimonials and gifts in recognition of his 25 years of effort on behalf of the society.

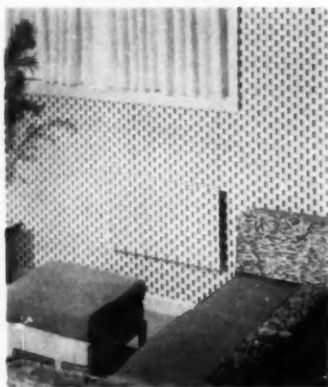
George Klahn of San Diego, Calif., was elected RSES president for the coming year. Denver Walthan, Tulsa, Okla., was named 1st vice president. New 2nd vice president is Paul Darby, Tacoma, Wash.

Board of directors elected for two-year terms: Carl W. Price, Knoxville, Tenn.; A. J. Lane, Raleigh, N. C.; J. Lawrence Hall,

Nashua, N. H.; Michael Rudka, Oshawa, Ontario, Canada; and Otto Grossman, Newark, N. J.

Retiring president A. E. Manning was given the Paul B. Reed memorial award by Dr. Walter O. Walker, University of Miami. This plaque remains the permanent property of RSES, but each year the winner will receive a replica of the plaque. His name then will be inscribed on the permanent memorial. The first award (1958-59) will be given to the chapter with the highest percentage of certificate members.

SEARCH US!



PUZZLE: FIND THE AIR-CONDITIONER! This new General Electric built-in air-conditioner projects only 3 1/2" into the room, and can be papered or painted to match room decor. Case dimensions are 15 1/8" high, 26" wide, and 12 or 16 1/2" deep. No special ducts or plumbing is required to install the units.

Manning reported a net gain in membership of 718. Total membership is 9,967.

Seven RSES members received plaques for 25 years of service. They were: James H. Downs, Cleveland; McDermott, Irving Alter, and H. A. Goldberg, all Chicago; C. A. Brunton, Huntington, W. Va.; Israel Kramer, Trenton, N. J.; and E. A. Plesskott, St. Louis.

The 1959 convention will be held in Atlantic City, N. J. in conjunction with the 11th Exposition of Air Conditioning & Refrigeration Industry.

SALESMEN MEET JAN. 26

Drayer-Hanson's national sales meetings will be Jan. 26-29 at Hotel Warwick in Philadelphia.

THERMAL SUPPLY BUYS UNITED SUPPLY ASSETS

Thermal Supply, Inc., refrigeration and air-conditioning wholesaler of Houston, Tex., has acquired the assets of United Supply Co., a wholesaling firm with headquarters in San Antonio.

Thermal Supply is the parent company, and wholly owns all of the corporate subsidiaries. These subsidiaries are incorporated as Thermal Supply of Houston, and Thermal Supply of all the following cities in which they are located: San Antonio; Corpus Christi; Beaumont; Austin; Harlingen; McAllen; Victoria; Galveston; Monro, La.; and Shreveport, La.

Two additional subsidiaries are Thermal Rental and Thermal Agency.

Corporate officers of the parent company, Thermal Supply, Inc., are: Elmer K. Peterson, president; Winston C. Peterson, executive vice president; Alex Trevino, vice president; William F. Hauber, merchandising vice president; and Tom E. Gossett, secretary-treasurer. Trevino is president of the United group, and Elmer Peterson heads the Thermal group.

Centralized control and purchasing will be concentrated in Houston. No major change in personnel or in manufacturers represented is anticipated.

The change in name will be gradual. The United Supply name will continue to be used in a practical manner in those areas where it has been firmly established.

The combined companies, with 11 warehouse locations, will cover an area that includes all of Louisiana except the Baton Rouge-New Orleans section, and all of east, south, and southwest Texas.

AIR DEVICES ACQUIRES STEWART MFG. CO. LINE

Air Devices Inc., has acquired the complete line of registers and grilles, formerly made by Stewart Mfg. Co., Kingston, N. C. These registers and grilles now will be marketed under the trade name "Agitair" and will be produced in Pennsylvania.

All "Agitair" products will be sold exclusively by representatives for Air Devices.

Complete! Compact!

only \$41.00

PREST-O-LITE

TRADE-MARK

**Refrigeration
& Air-Conditioning
Outfit**

Includes torch handle, leak detector stem, 3 torch stems, regulator (for B or MC tank), 12½ ft. hose assembly, suction hose, and enameled steel carrying case.



Give your customers prompt, fast and complete service with this LINDE leak detecting, soldering, heating, and brazing outfit.

● **SENSITIVE LEAK DETECTOR**

Shows up as little as 100 parts per million of halide refrigerant gas in air—locates leaks too tiny to find with soapy water.

● **PRECISION CONTROL**

Acetylene regulator automatically maintains selected delivery pressure—calibrated screw for pressure adjustment.

● **JOB-MATCHED OPEN FLAMES**

Fine, light, and medium torch stems—instantly interchangeable—for refrigeration and air-conditioning jobs.

● **EASY TO USE**

Detector is simple and positive—soldering and heating torch concentrates flame where needed—everything in one compact case!

Available from your local supplier of LINDE products. For his name and address, write: LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y.



"Linde," "Prest-O-Lite," and "Union Carbide" are trade-marks of Union Carbide Corporation.

Circle No. 71 on Reader Service Card
BUSINESS • JANUARY 1959

FLEXIBLE AIR DUCT

Continued from Page 53

Connecting the flexible duct to a metal fitting is just as easy. Again coat the inside end of the duct with adhesive and then slip in onto the fitting. Fasten it with a simple strap clamp.

Flexible duct is designed to complement sheet metal duct, not replace it entirely. It is not practical for complete duct systems, but it does have these six major areas of application:

- (1) to connect perimeter under window units with vertical risers;
- (2) to connect branch ducts to ceiling outlets;
- (3) to serve as a connection between a branch duct and an attenuation box, on the high pressure side;
- (4) to provide a vertical take-off from branch runouts to ceiling pan type outlets;
- (5) to compensate for misalignment problems wherever they may exist in both high and low velocity systems;
- (6) to provide short duct runs with packaged units for the benefit of dealers having no sheet metal facilities.

CONTRACTORS OFFERED REFRIGERATION COURSE

The North Carolina State board of refrigeration examiners is helping sponsor a five-day refrigeration short course in Raleigh, March 9 through 13.

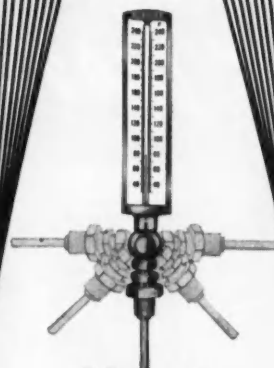
The course offers commercial refrigeration contractors, servicemen, and technicians a review of refrigeration theory and application. The course will include lectures, demonstrations, and accepted installation methods.

Complete details may be secured from the College Extension Div., North Carolina State College, Raleigh, N. C.

DETROIT CONTROLS GETS NEW OFFICE, WAREHOUSE

The Chicago regional office of Detroit Controls has moved into larger quarters. The new office and warehouse contains over 4000 sq. ft.

The warehouse will stock complete lines of valves and controls.



**No. 1
SPACE
STRETCHER**

"Inner space" problems are sometimes more baffling to engineers, architects and contractors than those concerned with "outer space."

That needed inch or two amid the usual maze of pipe, conduit, tube and cable is worth its size in gold!

Where space is a factor, that's the place for Weksler ADJUST-ANGLE® Thermometers. These versatile instruments, supplied in four case sizes, meet every installation requirement. The exclusive Weksler ADJUST-ANGLE feature permits positioning of stem or case to fit any space.

**MORE THAN A
HUNDRED THOUSAND
ADJUST-ANGLE
INSTALLATIONS!**

Write for complete
information.

*PATENTED

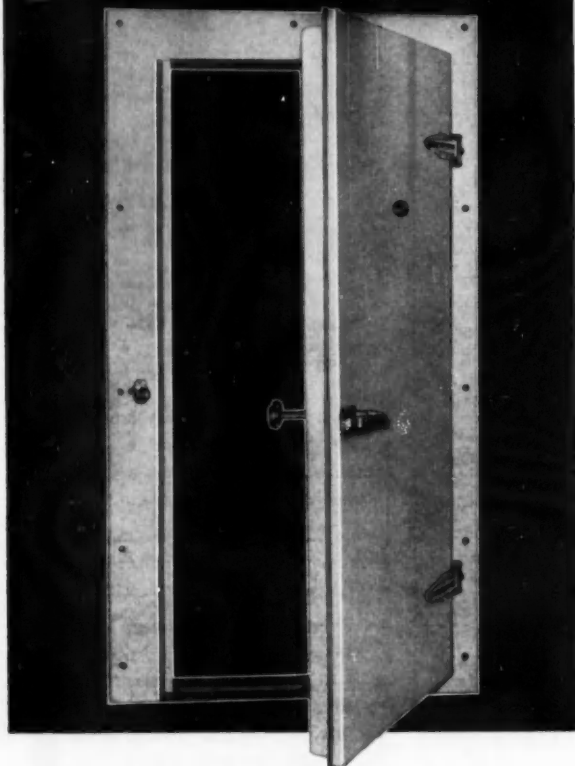


WEKSLER INSTRUMENTS CORP.
FREEPORT, L. I., NEW YORK
INDICATING AND RECORDING INSTRUMENTS
FOR TEMPERATURE, PRESSURE AND HUMIDITY

Circle No. 70 on Reader Service Card

NEW FIBER GLASS REFRIGERATOR DOOR

BETTER 5 WAYS !!



- 1 **MOLDED CONSTRUCTION** . . . seals moisture out.
- 2 **NO RUST, ROT, WARPING** . . . can't corrode or wear.
- 3 **LIGHT IN WEIGHT** . . . less than one-third other doors.
- 4 **NO PAINT, NO UPKEEP** . . . cuts maintenance cost.
- 5 **COMPETITIVELY PRICED** . . . costs no more for the best.

Molded fiber glass cooler and freezer doors designed to fit today's refrigeration needs. Moisture resistant, they can't rot, warp, wear or corrode. A truly revolutionary new product development.

Write today for literature.



**WALKER STAINLESS
EQUIPMENT CO., INC.**
NEW LISBON, WISCONSIN

Circle No. 80 on Reader Service Card

USEFUL LITERATURE

Continued from page 85

CABINET AIR-CONDITIONERS are the subject of Bulletin 2900 published by Ilg Electric Ventilating Co. The 20-page booklet contains complete construction details, selection data, arrangement diagrams and capacity information on 7 new units.

Circle No. 120 on Reader Service Card

UNIT HEATERS are the subject of Catalog 287 published by C. A. Olsen Mfg. Co. Includes a description of a new line of five direct fired gas unit heaters, complete ratings, specifications and dimensions. Also lists air throw data determined by actual measurement with a velometer.

Circle No. 121 on Reader Service Card

CENTRAL STATION air-conditioning units are discussed in 50-page Bulletin No. 30 published by Marlo Coil Co. Engineering drawings are presented. Units described are available in floor and ceiling types, in 36 sizes from 400 to 40,000 cfm.

Circle No. 122 on Reader Service Card

SERIES OF SPECIFICATION SHEETS describing line of air testing instruments, used extensively in heating, ventilating and air-conditioning have been released by E. Vernon Hill & Co. Lists all information such as range, size or capacity, dimensions, and price.

Circle No. 123 on Reader Service Card

EASIER SELECTION methods are offered in Carrier Corp. Catalog No. 39ACW-55 covering central station air-conditioning units from two new Weathermaker lines for conventional and multi-zone applications. Along with extensive engineering data, there are mechanical and guide specifications, and examples using all material.

Circle No. 124 on Reader Service Card

ACTIVATED CHARCOAL is analyzed thoroughly in eight-page folder by Barnebey-Cheney Co. It explains the processes involved in making the product and how it is developed for liquid and gas purification uses. Air purification also is discussed.

Circle No. 125 on Reader Service Card

PANEL INSTRUMENTS are the subject of Bulletin 2059 published by Simpson Electric Co. Shows types of instruments and scales available and lists range of each. Also includes dimensional data and features.

Circle No. 126 on Reader Service Card

MECHANICAL CLEANING in areas where poor water conditions exist is one of the subjects in a 16-page catalog (8044) released by Dunham-Bush, Inc. Described and illustrated are cleanable shell and tube condensers. Gives construction details, dimensions, selection data, and performance charts.

Circle No. 127 on Reader Service Card

COOLING COILS are the subject of Bulletin No. 80 published by American Air Filter Co. Lists complete coil selection information plus detailed descriptive information on the coils themselves. Includes direct expansion coils, and standard and cleanable tube water coils. 24 pages of capacity rating tables are provided in direct expansion coil section. Also listed are detailed refrigerant pressure drop charts.

Circle No. 128 on Reader Service Card

CONTROLLED ATMOSPHERIC CONDITIONS is the title of a 28-page brochure published by Webber Mfg. Co., Inc. Technical section lists specific heat of various substances including solids, liquids, and gases; metal shrinkage; boiling point of refrigerants; convection fluids; temperature conversion chart; relative humidity table; altitude conversion table; and schematic diagrams of one and two stage cascade systems. Colorful illustrations show standard atmosphere properties at altitudes up to 1,800,000'. Specifications and applications of the company's environmental chambers are also listed.

Circle No. 129 on Reader Service Card

AIR CLEANERS

Continued from page 56

heating systems. Wouldn't you like to increase your profits by 10% on every job?

The air-conditioning business today is a marginal affair. Competition is tough and profits are getting slimmer. One answer to this profit squeeze is to sell more items on every job. Do this and you lift the average selling job from a cut-throat price contest to a quality-selling, profitable merchandising operation.

So the electronic air cleaner offers you a chance to help yourself while helping your customers. For you it can mean a bigger slice of profit from your air-conditioning operations. For your customers it can mean greatly improved efficiency from one of the most important elements of their air-conditioning equipment.

SPORLAN MEETING MARKS 25TH ANNIVERSARY

Silver anniversary of the company's founding was marked by Sporlan Valve Co. at a national sales meeting held early this month.

To further commemorate 25 years of business activity in the refrigeration and air-conditioning industry, Sporlan is inaugurating two new slide presentations for which they have become noted during the past decade.

While the business association of Harry T. Lange and Herman F. Spoehrer began in the mid-twenties, their present company was not established until January 1934. It was then known as Spoehrer-Lange Co.

The initial year's production of thermostatic expansion valves introduced such engineering firsts as selective charges, solder flange bushings and atomic hydrogen welded diaphragms for power elements. Within a few years Sporlan became the first independent supplier of refrigerant distributors, and the line was further expanded to include solenoid valves.

Sporlan pioneered the development and marketing of the first molded porous core filter-drier over 10 years ago, and later spon-

sored engineering innovations in the field of controls for flooded systems as well as in moisture and liquid indicators.

Today the company distributes its products to original equipment manufacturers and more than 250 wholesalers through a staff of 25 engineers operating in 20 sales offices throughout the United States.

OPENS NEW WAREHOUSE

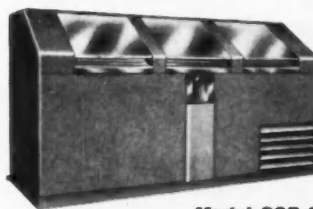
United Refrigeration, Inc., Philadelphia, Pa., wholesaler of air-con-

ditioning and refrigeration supplies, recently began operation of a new warehouse and administrative offices at 4307 G Street, Philadelphia. This new location is an expansion of the company's present facilities at 1618 Fairmount Ave. in that city.

An open house celebration marked the opening of the new facilities.

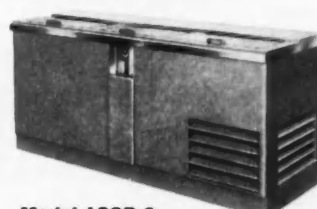
**BUY FROM YOUR
REFRIGERATION WHOLESALER**

for BETTER COOLING go **NOR-LAKE** all the way MILK AND BEVERAGE COOLERS



Model SCP-6

Dry Bottle Cooler—Features clean-line design, recessed toe space, two-way blowers and heavy duty compressor. Baked enamel or stainless steel. No installation necessary. 24 models, up to 48 12-oz.-bottle case capacity.



Model LSCP-6

Lo Boy Beverage Cooler—Perfect for under counter use—just 34 1/4" high! E-Z slide lids disappear completely. 18 models—up to 40 12-oz.-bottle case capacity. Baked enamel or stainless steel.

DIRECT DRAWS



Model 3KR

Here's Cold Dome refrigeration right to the faucet tip—a Nor-Lake exclusive! Styled with rounded edges for safety and easy cleaning. Baked enamel or stainless steel. 12 models with up to 4 keg capacity.

ICE CUBE MAKERS



Model SCIM-25

Fill trays with one hand, without spilling, in this handsome self-contained unit. 4 1/2 bushel storage (630 cubes) with extra bushel freezing! Baked enamel or stainless steel—several models.

WRITE FOR FULL INFORMATION AND SPECIFICATIONS:

NOR-LAKE, Inc.
Second Ave. and Elm,
Hudson, Wisc., Dept. 202



NEED IT NOW?
NOR-LAKE can ship
now—all models kept in
stock!

Please rush FREE illustrated information on

☐ Bottle Coolers ☐ Direct Draws ☐ Ice Cube Makers

☐ Other _____

NAME _____

ADDRESS _____

CITY _____ STATE _____

Dealer-Distributor APPOINTMENTS

Partial four-state coverage in the West for **Drayer-Hanson** will be vested in newly appointed sales agent, **Mechanical Equipment Co.**, Salt Lake City, Utah.

The Salt Lake City firm will furnish D-H with sales and engineering service in the entire state of Utah, southern Idaho, southwestern Wyoming, and northern Nevada.

Firm's principals are Richard B. Maycock, owner-manager; Raoul C. Evans, chief engineer; and Leon D. Lundquist, assistant engineer.

Nor-Lake, Inc., has appointed two new manufacturer's representatives to handle its line of commercial refrigeration equipment.

Fred W. Borlaug, Denver, covers Colorado, Wyoming, Utah, Kansas, Idaho, and Nebraska.

S. A. Maverick Jr., Houston, represents Nor-Lake in Texas, New Mexico, Oklahoma, Arkansas, and Louisiana.

Record Supply Co., Reno, Nev., has been named a franchised distributor for **York Corp.** commercial and residential air-conditioning and heating products.

Record will sell York units in Chico, Sacramento, San Francisco, and Fresno Counties in California, and Washoe County, Nevada.

Thirteen new distributors for **General Electric** halogen and helium leak detection equipment have been named.

They will offer off-the-shelf delivery and local application and engineering service on standard ratings and models of halogen leak detectors.

Newly appointed firms are: **Braun Chemical Co.**, Los Angeles, Calif. with branch offices in Phoenix, Albuquerque, and El Paso; **Braun-Knecht-Heimann**, San Francisco, offices in Salt Lake City,

Denver, and Honolulu; **Illinois Testing Laboratories**, Chicago; **Christie Laboratories**, Cleveland, with branches in Cincinnati and Dayton; **Scientific Supply Co.**, Seattle, with offices in Portland, and Vancouver, B. C.; **Electro-Tech Equip. Co.**, New York, with offices in Atlanta, and Cambridge, Mass.; **Yale Associates**, Marblehead, Mass.; **Electronic Supply Co.**, Battle Creek, Mich., with offices in Kalamazoo, Cadillac, and Traverse City, Mich.; **Sunshine Scientific Instrument Co.**, Philadelphia; **Aerserco Mfg. Co.**, Pittsburgh; **Harry Alter Co., Inc.**, Chicago, with branches in New York City, Atlanta, and Dallas; **Carl Hermann Associates**, Palo Alto, Calif.; and **F. J. Stokes**, Philadelphia.

M & M Refrigeration Supply Co., El Paso, Tex., has been appointed a complete authorized stocking wholesaler for the El Paso area by **Copeland Refrigeration Corp.**

The company also will serve a part of New Mexico and lower Arizona.

Appointment of **George L. Johnston Co.**, Detroit, as distributor of **Carrier Corp.** equipment for the state of Michigan, has been announced. The new distributor will handle all product lines including automatic ice making equipment, room units, and residential, commercial, and industrial equipment for both cooling and heating.

Sues, Young & Brown, Los Angeles, has been franchised as distributor for **Typhoon Air Conditioning Co.** and **Typhoon Heat Pump Co.** The new distributor will distribute the Typhoon lines in 12 counties in southern California and Nevada.

Eastern Supply Co. has been appointed as agent by **Nitrogen Div., Allied Chemical Corp.** to handle sales for Barrett Brand Anhydrous ammonia in cylinders in Mt. Vernon, N. Y.

Industrial Acoustics Co., Inc., has announced the appointment of the following manufacturer's representatives to represent its line of quiet duct silencer for air-conditioning and ventilating systems: **Dan B. Billington**, Cleveland; **Jack Chichester**, Mobile, Ala.; **Empire State Equipment Co.**, Providence, R. I.; **Houston Co.**, Lubbock, Tex.; and **Airadyne Co.**, West Roxbury, Mass.

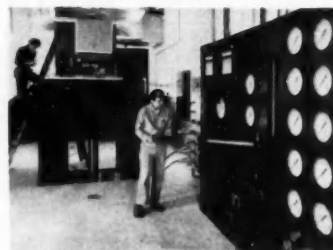
Sweiger-Davidson Co., Chicago, has been named heating and air-conditioning representative for **McQuay, Inc.**

Dunham-Bush, Inc., has announced the appointment of **Raymond G. Albert**, Minneapolis, Minn., former district sales manager for Brunner Mfg. Co., as industrial sales representative in the Minneapolis district.

Liquid Freeze Corp. has announced the appointment of **Moore & Hanks Co.**, Los Angeles, Calif., as its exclusive distributor in southern California. The company will handle a complete inventory of Liquid Freeze instant ice machines and parts.

Herman Co., Cleveland, has been appointed a distributor for **Puffer-Hubbard Refrigerator Co.** Proprietor is Ed Herman.

LAB DOES DOUBLE DUTY



TWO-FOLD-PURPOSE research laboratory at Ampere, N. J., has been finished by Worthington Corp. The 10,000 sq. ft. structure will: 1) provide facilities for product development and research; and 2) fully test packaged units in accordance with ASRE testing and the ARI compliance program.

CO-OP DISPLAY

Continued from page 53

expresses interest in a particular brand of equipment, the lead will be passed on to the manufacturer of that brand. If no specific brand preference is expressed, leads will be forwarded to exhibiting manufacturers in groups of three on a consecutive rotating basis.

To assure equitable distribution of leads, this phase of the program will be policed at the Institute's expense by the Willmark Service System or some equally reputable service.

To publicize the Institute's character as a permanent exhibition ground for air-conditioning equipment, and to develop both consumer and dealer interest, the Institute will spend 20% or more of its gross income from exhibitors on general promotion and advertising. This will include newspaper and radio advertising and publicity, public relations, prize contests, and a wide variety of special promotions.

ASHAE, ASRE MEMBERS APPROVE MERGER

Members of American Society of Heating and Air-Conditioning Engineers, and American Society of Refrigerating Engineers have voted for the merger of the two societies. The consolidated society will be named American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

Balloting was conducted at a special meeting of ASHAE in Chicago, Ill., and at the ASRE semi-annual meeting in New Orleans, La. Each society recorded a high total number of ballots with 93% of ASHAE, and 73% of ASRE voting in favor of the merger. A two-thirds majority of the total vote was required to approve the merger.

MASON MOVES PLANT

Mason Products, Inc., manufacturer of water cooling towers, has moved from West Concord, Mass., to a new plant in Woburn, Mass.

Circle No. 73 on Reader Service Card

**DON'T GAMBLE WITH
HARSH CHEMICALS — USE**

SOLVEX

Your Best Deal!

For Water-Cooled Equipment

Ultra Solvex

Solvex Maintenance

Regular Solvex

Solvex Algae Control

CSCO Ice Machine Cleaner

See your Wholesaler or write:

CHEMICAL SOLVENT CO.

P. O. Box 487

Birmingham, Ala.



Send this
LABEL
from any
'SUPCO 88'
Bottle

We will send you

FREE

THIS VALUABLE

REPAIR INFO KIT

- Relay Diagrams
- Sealed Unit Terminal Connections
- Diagnosis Chart
- Capillary Chart
- "Supco 88" E Z Read Chart

A BUNDLE of information that took years to compile is yours, **FREE** with your first purchase of "Supco 88" — **THE MIRACLE OIL ADDITIVE FOR REFRIGERATION USE!**

SEALED UNIT PARTS CO., Inc.

1178 East 180th St. • New York 60, N. Y.

Circle No. 74 on Reader Service Card

STOP

Losing money during your
slow season—

LOOK

At how easy it is to keep your mechanics profitably employed all year repairing hermetic compressors with a **FRANKELL HERMETIC COMPRESSOR OPENER**. Keep your shelves filled with rebuilt units so that during the busy season you can do more jobs in less time at a greater profit. A **FRANKELL HERMETIC COMPRESSOR OPENER** opens any hermetic compressor up to 20" in diameter. No special jigs or skill required.

LISTEN

To the ring of profits the year 'round. Remember, when you repair hermetic compressors, the profits are big. So **ACT NOW!** Only \$695 Ex Factory. Ask about our rental plan. Export facilities.

FRANKELL MFG. CO., INC.

1074 Home Street, New York 59, N. Y.

WRITE DEPT. 5 for complete information.

Circle No. 75 on Reader Service Card

DON'T LOSE ANOTHER SALE!

Lost sales mean lost profits . . . unnecessarily. As a Coldin Dealer you can't miss—you are assured of the right cabinet in the right size at the right time. This makes sense . . . and makes money for you too!

Coldin manufactures quality refrigerators for every type of food handler—retailers, hotels, restaurants, schools, clubs, etc. You can tackle any segment of the entire field successfully as a Coldin franchised dealer. Investigate! Write for full details and catalog today.



COLDIN
CABINET CO., Inc.
2800 Webster Ave., N. Y. 58, N. Y.

CONDITIONED AIR COMFORT
when and where needed

WITT
Zone Air

Room Unit
Air Conditioner



"MIRACULOUSLY QUIET"

These attractively finished cabinet models compliment the decor of the most elaborate surroundings.

ZONE AIRS are also available in concealed type units. No duct work required. No tearing out of partitions.

Available for direct expansion, hot or cold water or direct expansion and hot water.

Eight models—1½ to 10 ton capacities.

Meat packaging room units—¾ to 2½ ton capacities.

A Few Territories Open
Write for Data Sheet

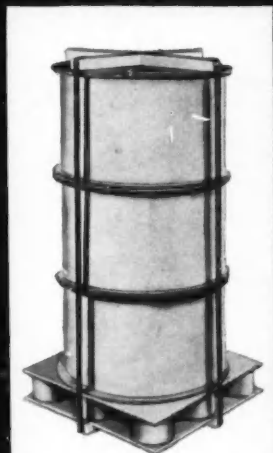
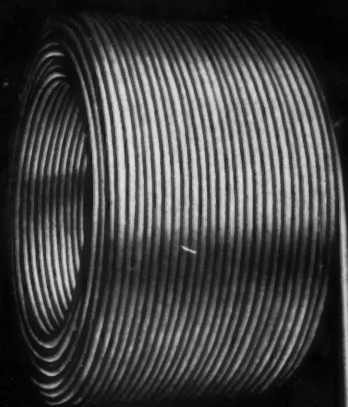
WITT **A. H. WITT CO., Inc.**
Coils 940 N. Sycamore Ave.
Los Angeles 38, Calif.

Circle No. 77 on Reader Service Card

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